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# QUARTERLY JOURNAL
OF
# MEDICAL SCIENCE.

Robt. J. Graves

*(From a Drawing by C. Gray, R.H.A.)*

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# THE DUBLIN

# QUARTERLY JOURNAL

OF

# MEDICAL SCIENCE;

CONSISTING OF

ORIGINAL COMMUNICATIONS,

REVIEWS, RETROSPECTS, AND REPORTS,

INCLUDING THE

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THE DUBLIN

# QUARTERLY JOURNAL

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# MEDICAL SCIENCE.

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## PART I.

## ORIGINAL COMMUNICATIONS.

ART. I.—*Observations upon Chronic Rheumatic Arthritis of the Shoulder.* By ROBERT W. SMITH, M.D., M.R.I.A., Professor of Surgery in the University of Dublin; Surgeon to the Richmond Hospital; Fellow of the Royal Medico-Chirurgical Society of London; Secretary to the Pathological Society of Dublin, &c. &c.

IN the month of April, 1852, I exhibited, at a meeting of the Pathological Society of Dublin, the shoulder-joints of a man about sixty years of age, each of which presented an example of congenital luxation of the head of the humerus backwards upon the dorsum of the scapula, and in which chronic rheumatic arthritis had been established. In the following pages I purpose, in the first place, to give a description of these very remarkable specimens, and afterwards to analyze the cases which, under various appellations, have been, from time to time, recorded as examples of injuries of the shoulder-joint from external violence, but which, in my opinion, are rather to be looked upon as instances of the effects of chronic rheumatic arthritis.

With respect to the first part of the subject, it will be sufficient to give a detailed account of one of the articulations, so closely did they resemble each other, both in external configuration and in anatomical characters.

Upon the right side, the head of the humerus, placed much farther back than natural, and elevated so as to be in contact with the under surface of the acromion process, formed upon the dorsal region of the scapula a conspicuous tumour, which moved with the shaft of the bone. The acromion and coracoid processes, more especially the latter, were unusually prominent. The shoulder was flattened anteriorly, and the axis of the humerus passed somewhat inwards.

Upon removing the deltoid muscle, and laying open the capsular ligament, it was found that no articular surface existed in the normal situation of the glenoid cavity; but upon the external aspect of the neck of the scapula[a], there had been formed a glenoid-shaped, concave surface, for the reception of the head of the humerus. It measured two inches and a quarter in its vertical, and one inch and three-quarters in its transverse, diameter; totally destitute of cartilage, it was covered by a texture as hard and dense as enamel, and as smooth as polished ivory. A glenoid ligament, much broader than natural, surrounded the greater part of its margin; it adhered intimately to the capsular ligament, but had become in several places detached from the circumference of the socket.

The tendon of the biceps muscle arose from the summit of the articular cavity; there was no interruption of continuity in any part of its course, but its intra-articular portion was remarkably short; it passed from its origin almost at once to the bicipital groove. At the point where it arose, however, from the glenoid cavity, its texture was unravelled, and its fibres separated from one another.

The acromion process, about an inch from its anterior extremity, was divided into two portions; the detached fragment rested upon the summit of the great tuberosity, and the solution of continuity corresponded to the sulcus which separates the tubercle from the head of the humerus. There was no deposition of bone along the line of separation, nor displacement of the detached portion, which was closely connected with the remainder of the process by the fibrous tissues derived from the muscles which are here attached.

The head of the humerus had lost completely the globular form which it possesses in the normal state; it was flattened from within outwards, and its axis appeared continuous with that of the shaft of the bone; its inferior border was prolonged downwards, so as to conceal a portion of the anatomical neck of the humerus, between which and the elongated margin of the head there existed a deep sulcus or fissure, which was

[a] See Plate I. Fig. 1.

Plate 1.

Fig 1.

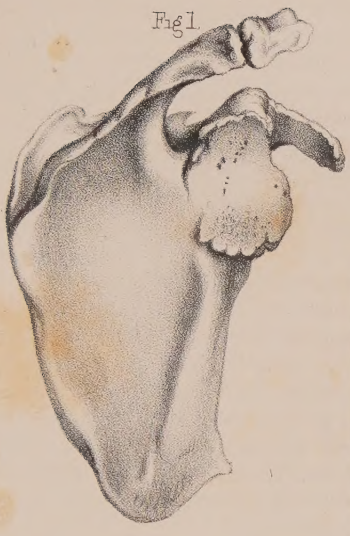


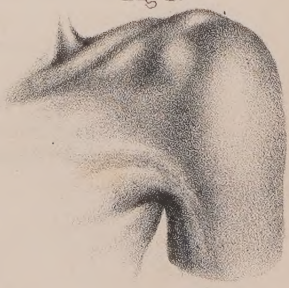
Fig 2.

Fig 5.

Tendon of Biceps

Fig 3.

Fig 4.



occupied by vascular productions from the synovial membrane. The articular surface, the outline of which had become quadrilateral, was fully an inch broader than the socket in which it moved, and was smooth and polished to the same extent as the glenoid cavity. The lesser tuberosity was enlarged, and had become articular, and irregular osseous growths surrounded the head of the bone.

The tendons of the capsular muscles were perfect, with the exception of that of the subscapularis, the attachment of which to the rough and scabrous lesser tubercle had, to a certain extent, disappeared. The capsular ligament was somewhat thicker than natural.

Upon the left side the condition of the articulation was similar to that just described as existing upon the right. In the form, situation, extent, and polish of the glenoid cavity[a]; in the broad and partially detached glenoid ligament; in the unravelled condition of the tendon of the biceps at its origin; in the enlargement, flattening, and polish of the head of the humerus; its elevation to the acromion process; the nodulated state of its circumference; its prolongation downwards;—in all these respects there existed a perfect similarity between the two articulations. There was also upon both sides an osseous growth from the margins of the bicipital grooves, by which their depth was increased. Upon the left side, however, the acromion process was perfect, but the surface for articulation with the clavicle was enlarged. Upon this side, also, osseous depositions had taken place in the capsular ligament, near its attachment to the inner margin of the glenoid cavity.

It must, I think, be obvious to those acquainted with the external signs and anatomical characters of congenital luxations of the shoulder backwards, and who are also familiar with the morbid appearances which chronic rheumatic arthritis presents when established in this articulation,—that in these remarkable specimens two distinct classes of phenomena existed: the one manifestly indicating original malformation; the other as clearly denoting the super-addition of a disease of a peculiar character. To the former belong the absence of any vestige of a glenoid cavity ever having existed in the situation which it naturally occupies; the accurate resemblance to one another of the abnormal sockets in position, shape, and dimensions; the shortness of the intra-articular portions of the bicipital tendons, and the existence of glenoid ligaments. These phenomena indicate, in my opinion, that the deformities originated neither in disease nor accident; and when I compare them with those

[a] See Plate I. Fig. 2.

observed in the case of double, congenital, sub-acromial luxation, described in my work on Fractures[a], I feel more strongly convinced that, in the rare and remarkable case just described, the malformations were also congenital.

Among the appearances which demonstrate that chronic arthritis had long existed in each of these malformed joints, are to be placed;—the removal of the articular cartilages; the enamelling of the osseous surfaces thus exposed; the bony growths around the bases of the heads of the humeri; the deposition of bone in the capsule; the unravelling of the fibres of the bicipital tendons; the growth of the numerous vascular bunches of synovial fimbriæ; and the solution of continuity in the acromion process.

In confirmation of this view of the case, it may be mentioned, that in the body of the person in whom these specimens were found, all the fingers and toes were webbed, and that one of the hip-joints presented a well-marked example of chronic rheumatic arthritis, evidenced by the disappearance of the ligamentum teres, the removal of the articular cartilage, the existence of an ivory-like deposit, and, finally, shortening of the neck of the femur, and an alteration in the angle which it naturally forms with the shaft.

The only specimens with which I am acquainted, similar to those above described, are contained in the Museum of St. Bartholomew's Hospital. In his valuable memoir upon the "Abnormal Conditions of the Shoulder-joint[b]", Mr. Adams has thus alluded to these preparations: "Finally, the head of the humerus may be not only displaced partially upwards, as the result of this chronic rheumatic disease, partially inwards, and, as we have just proved, also partially downwards, but the most remarkable abnormal appearances the writer has witnessed from this chronic disease have been, in two specimens, contained in the Museum of St. Bartholomew's Hospital, in which it will be found that the head of the humerus, which had been affected by this chronic disease, was thrown completely backwards on the dorsum of the scapula. In this case the displacement was double, and two new glenoid cavities had been formed for the reception of the enlarged heads of the humeri, beneath the bases of the spines of the scapulæ, just where the head of the humerus has been found to rest in the ordinary dislocation backwards from accident; but in this case, although the history was unknown, that these appearances were not the result of accident is almost certain, as similar abnormal appearances are observable on each side." The notice of this preparation in the Catalogue of the

[a] Treatise on Fractures in the Vicinity of Joints, p. 206.
[b] Todd's Cyclopædia.

Museum is as follows[a]: "The bones of both the shoulder-joints of an adult. In each joint there has been ulceration, or such absorption as occurs in chronic rheumatism of the articular surface of the head of the humerus, and the glenoid cavity. The heads of the humeri are flattened and enlarged by growths of bone around their borders; and the glenoid cavities, enlarged in a corresponding degree, and deepened, extend backwards and inwards to the bases of the spines of the scapulæ. The articular surfaces, thus enlarged, are mutually adapted, and are hardened, perforated, and, in some parts, polished and ivory-like. The changes of structure are symmetrical, except in that the articular surfaces of the right shoulder-joint are more extensively polished than those of the left."

Although I have never had an opportunity of examining these preparations, I am, nevertheless, convinced, that they are not to be considered simply as examples of displacement of the heads of the humeri backwards, produced by the ravages of chronic rheumatic arthritis, but that they should rather be looked upon as instances of the supervention of this disease in a case of double congenital luxation of the shoulder backwards. It is true that when Mr. Adams, who is so well acquainted with this rheumatic disease, examined the preparations in question, they did not strike him in this point of view; but now that he has seen those which are in my possession, he feels perfectly satisfied, he has assured me, that the two cases are identical in their nature, and that they both present examples of the two-fold lesion that I have mentioned. The occurrence, therefore, of displacement of the head of the humerus backwards, as a result of chronic rheumatic arthritis, remains to be demonstrated.

I shall now direct attention to the displacement upwards, which is so frequently seen as a consequence of this disease; and, in doing so, it will be necessary to notice, analytically, the cases which have been from time to time recorded as examples of the effects of injuries upon the component parts of the shoulder-joint; but which, in my opinion, are to be looked upon as resulting from chronic rheumatic arthritis. It is true, that many of them were published at a period when but little was known of this remarkable affection; their authors are, therefore, to a certain extent excusable for having fallen into error respecting the nature of the morbid appearances which they have described; but it is also true that very many have been recently placed upon record, although we now possess full information respecting the symptoms, diagnosis, and patho-

[a] Page 108–32.

logy of chronic rheumatic arthritis, no matter in what articulation it may be seated. In proof of this statement, it is only necessary to refer to the various memoirs upon the abnormal conditions of the joints published by Mr. Adams in Todd's Cyclopædia, and to the numerous communications upon the subject which have been made to the Pathological Society of Dublin, and which are to be found recorded in the volumes of this Journal.

The most remarkable series of specimens, illustrative of the subject under consideration, is that published by Mr. John Gregory Smith in the fourteenth volume of the London Medical Gazette. He has there described the appearances observed in seven shoulder-joints, supposed to have suffered from severe injuries. The previous history of the different cases was unknown,—all the specimens having been found in bodies brought to the Hunterian Theatre of Anatomy. The following abstract from the author's account of this valuable series will suffice for my present purpose:—

No. 1.—The subdeltoid bursa was found to communicate with the general cavity of the shoulder-joint by a large irregular opening in the capsular ligament. The tendinous insertions of the subscapularis, supraspinatus, infraspinatus, and teres minor muscles, were detached from the tubercles of the humerus. The tendon of the long head of the biceps had been *torn* away from the upper part of the glenoid cavity, and entirely withdrawn from the joint; it was found to be firmly attached to the anterior margin of the bicipital groove; the size of the cavity of the joint was much increased. A small portion of the outer margin of the glenoid cavity had been *fractured* off, and with the under surface of the acromion process and the tubercles of the humerus, were partially covered with portions of enamel-like or porcelain secretion, and numerous bands of organized fibro-ligamentous substance extended across the cavity of the joint in different directions.

No. 2.—The subdeltoid bursa communicated, by a large opening in the capsule, with the interior of the joint, and the tendon of the subscapularis was partially *torn* from the lesser tubercle of the humerus. The tendon of the long head of the biceps was *ruptured*, leaving a portion, about half an inch in length, attached to the upper part of the glenoid cavity; the lower portion of the tendon had been drawn from the cavity of the joint, and lay firmly attached to the margin of the bicipital groove. The *ruptured* extremities of the tendon were perfectly smooth and rounded, and the superior portion had become much flattened.

No. 3.—On removing the deltoid muscle, the head of the

humerus came into view, presenting a larger surface of bone than usual. On further examination, it was found that the tendon of the subscapularis muscle had been partially *torn* away from the lesser tubercle, and the original insertions of the supraspinatus, infraspinatus, and teres minor muscles, had been completely separated from the greater tubercle. The tendon of the long head of the biceps had also been *torn* from its origin, and become attached to the upper part of the bicipital groove.

The under surface of the acromion process was found hardened by the friction of the head of the humerus, and covered by a peculiar enamel-like secretion.

Nos. 4 and 5.—These specimens were found in the body of a female aged 56. In the right shoulder, a jagged, irregular opening, as large as a half-crown, existed in the capsular ligament, so that the subdeltoid bursa communicated with the general cavity of the joint. The tendons of the subscapularis and supraspinatus muscles, *torn* from their respective tubercles, had become united with the capsule; the tendon of the biceps, *torn* from the glenoid cavity and withdrawn from the joint, was fixed firmly to the margin of the bicipital groove. There was a number of small osseous growths connected with the tubercles of the humerus, and an ivory-like deposit covered both them and the under surface of the acromion. A *fracture* of this process had separated about an inch of its expanded extremity; it had not united by bone.

In the left shoulder, similar conditions were observed, viz., the opening in the capsular ligament; the separation of the tendons of the supraspinatus and subscapularis muscles; the deficiency of the intra-articular portion of the tendon of the biceps; the adhesion of the remainder of the tendon to the groove of the humerus; the osseous growths upon the tubercles; the ivory-like deposit; and finally, the solution of continuity in the extremity of the acromion process.

Nos. 6 and 7.—Here, also, both articulations were similarly altered. In that of the right side, an irregular opening existed in the capsular ligament, and the tendons of the supraspinatus and subscapular muscles were separated from their tubercles. That of the long head of the biceps remained connected with the glenoid cavity, but was displaced towards the inner part of the joint; it was expanded, and appeared to have been subjected to pressure and friction; the surface which corresponded to the head of the bone was smooth, but the other presented a bundle of silvery cords, which could be spread out upon the finger three-quarters of an inch in width. The capsule had become so large as to allow of the head of the humerus being placed

under the coracoid process. There were small bony deposits about the tubercles, and here and there patches of ivory deposit.

In the left shoulder the capsule was entire, but was greatly increased in size and thickness. The tendon of the subscapularis was *torn* from the lesser tubercle, but the attachments of the other capsular muscles were preserved; the tendons, however, appeared to have been very much stretched. The tendon of the biceps was displaced towards the inner and lower part of the joint, and played over a smooth part of the lesser tubercle.

It would be difficult to lay before the reader any more striking examples of the anatomical characters of chronic rheumatic arthritis of the shoulder than those furnished by the preceding group of cases, gratuitously described by the author (for their history was unknown) as instances of the effects of accidental violence. The absorption of a portion of the capsule; the detachment of the tendons of the capsular muscles from the tubercles of the humerus; the separation of the acromion into two portions; the ivory-like deposit upon the surfaces of the bones; the loss of the tendon of the biceps; its adhesion to the bicipital groove; its separation into distinct fibres; its displacement inwards from the summit of the humerus; the osseous nodules about the tubercles; the conversion of these processes into articular surfaces; the enlargement of the capsule; the deposition of bone in the capsule, at the margin of the glenoid cavity (described by the author as a fracture); the symmetrical development of the disease—all these well-known results of chronic rheumatic arthritis upon the structures of the shoulder-joint are elucidated in the clearest manner, by the series of specimens (valuable and instructive as far as they speak for themselves) described by Mr. John Gregory Smith.

According to this gentleman, however, the preceding cases furnish examples of every known luxation of the shoulder, as appears from the following extracts from his observations:

"It is likely that the first case was an example of the effects that may be expected to follow the dislocation into the axilla, with the addition of a rupture from its origin, of the round tendon of the biceps muscle.

"The second case is probably one showing the effects of a partial dislocation, in which the head of the humerus is drawn forwards against the coracoid process of the scapula, but quickly slips back again into its natural socket. It is an example of a rupture of the round tendon of the biceps muscle, instead of the tendon being torn away from its origin.

"The third case, I am inclined to think, has been a dislo-

cation *into the axilla or on the dorsum of the scapula.*" It is difficult to imagine what resemblance could exist between the effects of these two opposite luxations, or how, in the case of that on the dorsum of the scapula, the tendons of *all* the capsular muscles, as well as that of the biceps, could have been torn from their attachments. In this rare displacement of the head of the humerus, the tendons of the infraspinatus and teres minor are relaxed, and in the dissection of this accident recorded by Sir A. Cooper, those of the supraspinatus and of the biceps were on the stretch, but not torn.

"The fourth and fifth cases occurred in the same individual." "I am inclined to think it probable that they are both examples of the dislocation upwards." "They would seem to have been produced at the same time."

"The sixth and seventh cases likewise occurred in the same subject. The appearances in the right shoulder, I think, clearly indicate that it is an example of the effects of a dislocation under the pectoral muscle. The appearances of the left shoulder result, perhaps, from a dislocation under the pectoral muscle or into the axilla."

When we consider the fertility of imagination displayed in the preceding extracts, it certainly appears strange, that with regard to the fourth and fifth specimens, as well as the sixth and seventh, the mere circumstance of the morbid appearances in one shoulder-joint being "nearly a counterpart" of those in the other, did not strike the author as constituting strong presumptive evidence of their having originated in disease, for symmetry is as frequent in diseases and original malformations as it is rare in injuries from external violence; and this observation holds good in an especial manner, as regards chronic rheumatic arthritis, wherever situated. It is difficult, indeed, to conceive how external violence could either rupture or dislocate the tendon of the biceps in both shoulders at the same time.

In the last edition of his valuable work on Surgery, Professor Fergusson, of London, has made some observations upon partial luxations of the shoulder upwards from external violence, which I deem it right, upon the present occasion, to give in full; and as I am of opinion that he has not given the true explanation of the phenomena which he has described, I shall devote some space to their consideration; for it is obvious that the promulgation of an erroneous doctrine is the more calculated to mislead, and therefore the more dangerous, the higher the authority from which it emanates. It need scarcely be said that I have no desire to undervalue the labours of one who has worked so efficiently to advance our knowledge of surgery as

the distinguished Professor of King's College, but truth compels me to say that, *as far as his published writings can guide us* in forming an opinion, he does not appear to be familiar with the symptoms and anatomical characters of that remarkable disease of the shoulder, which is so well known here by the name of "Chronic Rheumatic Arthritis," and which, in other countries, has proved itself so fruitful a source of errors in diagnosis.

"It is customary," says Professor Fergusson, "to suppose that the head of the humerus cannot be luxated directly upward; but I have long been of opinion that such an event, to a partial extent, may, and indeed does, occur pretty frequently. I have met with various examples in the dissecting-rooms, in which the end of the bone has been in close contact with the acromion process and spine of the scapula, or with the coraco-acromial ligament; lying, in the one instance, a little above and behind the upper part of the glenoid cavity; in the other, somewhat above and in front, between the natural articular surface and the coracoid process; both, however, coming strictly under the title of partial luxation upwards. Whether these effects were the result of immediate violence, or of gradual change, I cannot decide. The capsular ligament seemed entire, but elongated, in some of the examples, whilst in others the articular surface of the humerus was in contact with the parts above, the capsular ligament being attached to the surrounding textures, which, thickened and infiltrated with lymph, bore all the marks of former inflammation. Within these few years, the occurrence of rupture of the long head of the biceps has been noticed by Mr. Stanley, Dr. Knox, and others; and Mr. John Soden, Jun., of Bath, has related[a] the particulars of a case of supposed sprain in the shoulder, which dissection afterwards proved to be a partial displacement of the humerus upwards, and luxation of this tendon forwards on the lesser tuberosity. That this tendon is displaced in the luxation forwards or backwards (or perhaps, to speak more correctly, that the head of the bone in such instances is displaced from the tendon), there can be little doubt; I have seen the change more than once in the dissecting-room. In some shoulders, I have found the tendon partially torn and elongated, lying either in the natural groove, or in a new one formed by friction; in others, I have observed the tendon torn across about an inch from its upper extremity, which floated free within the capsule, whilst the other end was adherent to the groove between the tuberosities. In some of them, old unreduced luxa-

[a] Transactions of the Medical and Chirurgical Society, 1841.

tions existed; in others, every mark bore evidence that this injury had at one time occurred. There is now in my collection, in the Museum of King's College, a preparation strongly corroborative of the above observations. On a subject, I noticed that one shoulder was more prominent than the other, and, in the progress of the dissection, the head of the humerus was found lying immediately under the deltoid muscle, in contact with the acromion, and surrounded by a very thin capsule of cellular texture. On raising the head of the bone, it was ascertained that the long tendon of the biceps was torn, the under end being adherent in its natural groove, and that, in addition, a dislocation of the head of the humerus (forwards, in all probability) had been in a manner reduced; but, instead of passing again into the capsule, had been thrust between this texture and the deltoid muscle. Only a small portion of the glenoid cavity was visible at its lowermost point, the greater part being covered by the flattened capsule. Doubtless, in this case, the original opening in the ligament had been only sufficient to let the head of the bone escape, and not free enough to permit of proper reduction"[a].

It must be manifest to every person who reads, even in a cursory manner, the preceding extract from the recently published work of this justly distinguished surgeon, that no evidence whatever of any description has been adduced to prove the occurrence of partial luxation of the head of the humerus as the result of accident or external violence. The opinion which the author has advanced, viz., that this is an event of pretty frequent occurrence, is evidently grounded upon the phenomena which he has observed in shoulder-joints found in the dissecting-room, and with the previous history of which he was unacquainted. In the remarks which he has made upon the subject, he has, unknowingly, described many of the leading features of chronic rheumatic arthritis of the shoulder, although he looks upon them as resulting from accident: indeed this generally happens whenever a specimen, such as that to which he alludes as being preserved in the Museum of King's College, is found in the dissecting-room by those unacquainted with the pathological characters of this disease.

In the instance mentioned by Professor Fergusson, as one of partial luxation upwards from accident, there existed the following evidences, showing that chronic rheumatic arthritis had long been established in the articulation, viz.: the aperture in the capsular ligament; the contact of the head of the humerus with the deltoid muscle, and with the acromion pro-

[a] Practice of Surgery, p. 252, 1852.

cess; the disappearance of the intra-articular portion of the tendon of the biceps, and the adhesion of the remainder of it to the bicipital groove. In endeavouring to explain these phenomena, as well as the concealment of the glenoid cavity by the capsule, the author has evidently experienced some difficulty: for he has been obliged to have recourse to the hypothesis, that a dislocation of the head of the humerus forwards had occurred, and had been imperfectly reduced; and that, owing to the original aperture in the capsular ligament not having been free enough to permit the return of the head of the bone (although sufficient to allow it to escape), this latter had, in the efforts made to accomplish the reduction, been pushed up between the capsule and the deltoid muscle.

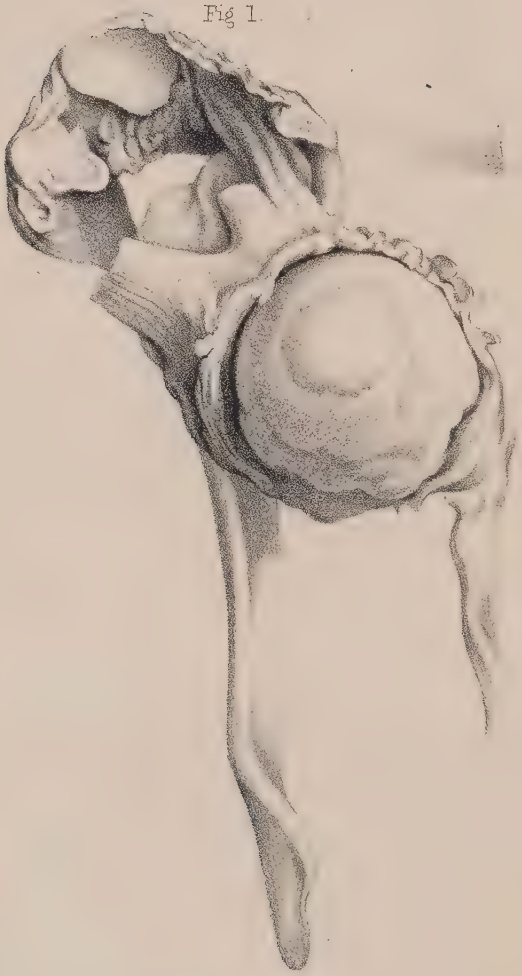
Upon the insufficiency of this explanation, it is scarcely necessary to make any remark, as the author himself seems to be aware of it, for he adds, "such an occurrence I believe to be exceedingly rare, almost all evidence going to prove that the capsular ligament is in general so extensively torn open, that the head of the bone cannot possibly be obstructed by it in its backward course; yet the preparation confirms the opinion of Delpech, who, though he suspected such an occurrence, had himself met with no anatomical proof of the fact." It might, I imagine, be safely added, neither has any one else.

The following account of a specimen of chronic rheumatic arthritis of the shoulder-joint, which is in my own collection, will, I think, illustrate the true nature of that described by Professor Fergusson. It was taken from the body of a woman of advanced age, who for many years before her death suffered from the usual symptoms of this disease, and who, it was known, had never sustained any injury of the shoulder.

Upon removing the deltoid muscle, the naked head of the humerus, elevated to the acromion process, came into view; the centre of its summit was devoid of cartilage over a space as large as a shilling, and covered with ivory-like deposit. An aperture of a circular form, with a fringed margin, and so large as to have permitted of the exit of the entire of the head of the humerus, existed in the upper and anterior part of the capsular ligament, the attachment of which to that portion of the anatomical neck of the bone, which lies above the greater tubercle, had disappeared; the tuberosity thus became articular; it was covered with ivory-like deposit, and in certain motions of the joint played against the under surface of the acromion; the sulcus which in the normal state separates it from the articular surface of the head of the bone was obliterated. The remains of the upper portion of the capsule, or that part of it which is related to the tendon of the supra-

Plate 2.

Fig 1.



spinatus muscle, was compressed, and, as it were, folded on itself between the upper portion of the glenoid cavity and the posterior inferior region of the elevated head of the humerus. The tendons of the four capsular muscles had lost their attachments to the tubercles, the lesser of which processes had become nodulated, and so much enlarged as to have obliterated that portion of the bicipital groove, of which, in the normal state, it forms the internal boundary. The intra-articular portion of the tendon of the biceps had nearly altogether disappeared; about a quarter of an inch of it, however, still remained connected to the glenoid ligament; its extremity was smooth and rounded off, like that of the bone of a stump; it was larger than natural, and, along with the corresponding portion of the glenoid ligament (which was loosened from its attachment), was laid down, as it were, upon the upper part of the glenoid cavity, between which and the head of the humerus (with the intervention of the capsule), it was compressed. The lower portion of the tendon was adherent to the inferior part of the bicipital groove, and to the remains of the neighbouring portion of the capsular ligament.

The acromion, about three-quarters of an inch from its extremity, was divided into two portions, which were held together solely by the fibrous structure which invests the upper surface of the process; but this tissue was so much stretched, that the detached portion was separated from the remainder of the acromion by an interval of three-quarters of an inch. The under surface of the entire process was denuded of periosteum and covered with an ivory-like structure, which was also found investing the articular surfaces of the acromio-clavicular joint. The lower part of the glenoid cavity (which was still covered with cartilage) was completely abandoned by the head of the humerus. The remainder of the socket presented the appearance of ivory, which manifestly must have been established before the head of the bone had perforated the capsule[a].

The resemblance which this case bears to that detailed by Professor Fergusson cannot fail to strike the reader. In each he will remark the elevation of the head of the humerus; its contact with the inferior surface of the acromion process; the deficiency in the capsular ligament, in consequence of which the head of the bone was found lying immediately under the deltoid muscle; the adhesion of the tendon of the biceps to the bicipital grove; the disappearance of its intracapsular portion, and the interposition of the capsule between the upper part of the glenoid cavity and the head of the humerus. We

[a] See Plate II.

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must, therefore, refer them to the same category, and as the one was known to have been a case of chronic rheumatic arthritis, uncomplicated with injury, and as the history of the other was totally unknown, it appears to me that we cannot avoid looking upon Professor Fergusson's specimen as a well-marked example of that disease.

In the fifth volume of Guy's Hospital Reports Mr. Hilton has published a case of dislocation of the right humerus into the axilla, with an account of the dissection of the parts, thirteen weeks after the accident. The injury was caused by the falling of a load of gravel upon the man while at work in a stooping position. When he had been extricated, his left femur, and some of his ribs, were found to be broken, and his right humerus dislocated into the axilla. The luxation was easily reduced, but great difficulty was subsequently experienced in maintaining the head of the bone in its proper position. The patient died of disease of the chest thirteen weeks after the accident.

The external form of the joint resembled very much the configuration of a shoulder which had been the subject of ulceration, or rupture of the tendon of the long head of the biceps, or what is termed the partial dislocation inwards of the humerus. The rotundity of the shoulder was diminished, as compared with that of the opposite side; the acromion and coracoid processes were very distinct; the head of the humerus was elevated to the acromion; the posterior surface of the joint flattened, and the deltoid muscle atrophied.

On dividing the attenuated deltoid transversely, and retroverting it, the head of the humerus was immediately brought into view, uncovered by its capsule, and without its greater tubercle, which had been broken off. A portion of the capsule, with the greater tubercle of the humerus attached to it, was found interposed between the articular surfaces of the humerus and the scapula. Two considerable openings existed in the capsule. The upper, somewhat circular in outline, was nearly an inch in diameter, and its edges were much thinned and well-defined; this opening corresponded with the surface of extreme pressure between the humerus and scapula. The lower opening was opposite the inferior edge of the glenoid cavity; it was angular in outline, and its edges were thick and irregular. Through this opening the head of the humerus escaped at the time of the accident.

The greater tubercle of the humerus had become retracted by its muscles with the capsular ligament, towards the outer part of the glenoid cavity. The tendon of the long head of the biceps had been separated from its origin at the scapula,

and divided vertically into two portions; one of them had become fixed to the inner edge of the bicipital groove; the other had acquired an adhesion to the tubercle of the humerus in its new position, and encircled the outer half of the neck of the humerus.

To any one who reflects for a moment upon the description given by the author of this interesting case, it must be apparent that two classes of phenomena existed, distinct in their nature, and originating in causes essentially different; one, produced by the injury which occurred thirteen weeks before the death of the patient; the other, resulting from the pre-existence of chronic rheumatic arthritis.

The results of the recent injury were, the angular rent in the lower part of the capsule, through which the head of the bone had passed into the axilla; the fracture of the greater tubercle of the humerus, and the interposition of the capsule between the articular surfaces of the humerus and scapula; while to the effects of pre-existing disease are to be ascribed—the circular aperture in the upper part of the capsule; the detachment of the tendon of the biceps from the glenoid cavity; its adhesion to the bicipital groove and adjoining portion of the tuberosity; the disappearance of its intra-articular portion; and the contact of the head of the bone with the deltoid muscle, and with the acromion and coracoid processes and coraco-acromial ligament.

The splitting of the remains of the tendon of the biceps was, I conceive, an effect of the injury; the broken tubercle, retracted by the muscles attached to it, drawing forcibly with it that portion of the tendon which previous disease had rendered adherent to it, where it forms the outer margin of the bicipital groove. It is obvious that the circular aperture in the upper part of the capsule could not have been the result of absorption from pressure exercised upon it *after* the receipt of the injury; for it is distinctly mentioned that great difficulty was experienced in maintaining the head of the bone in its natural position; that it had a constant disposition to fall again into the axilla, almost by its own weight; and that the action of three of the capsular muscles was annulled by the fracture of the greater tubercle. Under these circumstances it is impossible to believe, with the author, that "the pressure of the humerus upon the capsular ligament had induced its progressive attenuation and absorption," *after* the receipt of the injury. The case must, therefore, in my opinion, be considered as an example of dislocation and fracture occurring in a joint previously the seat of chronic rheumatic arthritis.

In the first volume of the Lancet for the year 1845, Mr.

Alfred Smee has given the particulars of the dissection of a case of partial dislocation of the shoulder upwards; the specimen was found in a body brought to the Aldersgate School of Medicine. He describes the upper part of the greater tubercle of the humerus as having been converted into an articular surface, which corresponded to another smooth surface, formed, partly on the inferior aspect of the acromion, and partly by new bony matter, extending about half an inch into what he terms the *tendon* of the deltoid muscle. The tendons of the supraspinatus and infraspinatus, together with the adjoining portions of the capsule, were *torn* from the tuberosity. The tendon of the biceps was *ruptured*, and the lower portion adhered firmly to the bicipital groove. He also alludes to the presence of several tendinous bands, which he considers to be a new formation, and destined to strengthen the capsule.

"From the above dissection," the author observes, "we are in a condition to infer the nature of the *accident* at the time of its occurrence, and it is apparent that the tendons of the spinati and capsular ligament were *torn* from the tuberosity, and the tendon of the *biceps* ruptured." This mode of dealing with the question will scarcely, be deemed satisfactory by those who have carefully studied the diseases of the shoulder-joint; for, in the deficiency of the capsule, the detachment of the capsular tendons, the adhesion of the remains of that of the biceps to the groove of the humerus, the conversion of the greater tubercle into an articular surface continuous with that of the head of the bone and in contact with the acromion, they will not fail to recognise the familiar features of chronic rheumatic arthritis of the shoulder. Nor can I avoid expressing my conviction, that the bony matter, which the author has spoken of as extending from the acromion into the *tendon* of the deltoid, and as forming part of the surface which articulated with the greater tubercle, was not in reality a new formation, but the detached extremity of the acromion, that process being traversed by the usual solution of continuity, with which we are now so well acquainted as one of the anatomical characters of the disease under consideration, but which we may conclude Mr. Alfred Smee to have been totally ignorant of, when he published the preceding case.

As to the tendinous bands observed in the capsule, had the author been acquainted with the morbid appearances noticed in the advanced stages of chronic rheumatic arthritis of the shoulder, he would have known that they were, in reality, the unravelled fibres of the capsular tendons.

(*To be continued.*)

Art. II.—*On the Treatment of Fractures of the Femur by a Simple Modification of Liston's Splint; with Observations on Re-fracture of the Bone in Cases of Deformity.* By Richard G. H. Butcher, F. R. C. S. I., Examiner on Anatomy and Physiology in the Royal College of Surgeons in Ireland, Surgeon to Mercer's Hospital, &c. &c.

When writing "On the Treatment of Fractures in the vicinity of the Ankle-Joint," the remarks upon which I published in the February Number of this Journal for 1852, and continued in the May Number of the same year, I quoted from the Cyclopædia of Practical Surgery, edited by Costello, a remarkable passage which instigated me to the task. I find again, at page 239 of the work referred to, the following striking observations:—

"In the extensive field of surgery there are not many departments in which our noble art is capable of conferring greater or more frequent benefits on humanity, than in that which relates to fractures. In cases of every day's occurrence, well-directed art will restore its natural strength, and form, and functions, to a fractured bone, which ignorance or unaided nature would have shortened and deformed; with the harmony between the moving powers and the joints so broken, by the change of the relative situations of the muscles and bones, as greatly to impair the usefulness of an entire limb." And "there is no class of cases in surgery which requires more anatomical knowledge, nicer experience, and judgment (medically and surgically), or greater dexterity of manipulation, than that of fractures." If these statements be correct, which few I think will deny, to no special form of fracture are they more applicable than to the varieties involving the thigh bone, about which so much has been written, and in reference to the treatment of which such discrepancy still prevails. If any additional proof were wanting to verify this assertion, it is afforded by the number of splints invented to accomplish a permanent and perfect consolidation of the broken bone. My object in the present paper is to show how efficiently the most unpromising forms of fracture of the thigh bone, *no matter in what part of it occurring*, can be treated by the simple modification of Liston's splint which I am in the habit of using.

Some of the cases which I adduce are replete with interest, and have been selected from amongst many, to illustrate the mode of treatment advocated, that plan which, if carefully pursued, will restore the member to all its usefulness and per-

fection in progression. To attract the eye of the practical surgeon, I shall first give a list of the cases treated, in order that their serious character may arrest attention and prove a sufficient guarantee that the test has been sufficiently searching. I shall next narrate the history, treatment, and result of each case, and afterwards make such observations as the localized peculiar symptoms characterizing some of them suggest; and lastly, I will describe the mechanical means employed, the advantages and mode of adjustment.

CASES DETAILED.

I. Fracture of the femur below the lesser trochanter united with shortening and great deformity; re-fractured thirty days after the accident.

II. Fracture of the femur below the lesser trochanter.

III. Fracture of the femur, partly within and partly without the capsule.

IV. Oblique fracture of the femur about its centre.

V. Oblique fracture of the femur through the great trochanter.

VI. Oblique fracture of the femur below its centre.

VII. Fracture of the femur external to the capsule.

VIII. Oblique fracture of the femur close to the knee-joint.

IX. Fracture of the femur through the great trochanter, nearly transverse.

Case I.—*Fracture of the Femur below the Lesser Trochanter, with shortening and great deformity; Re-fractured thirty days after the accident.*

John Toole, aged 19 years, a healthy-looking young man from the country, was admitted into Mercer's Hospital, October 16, 1849, labouring under great deformity and shortening of the left thigh, the result of fracture. The appearance of the limb on his admission is faithfully preserved by a fine cast in my collection, and from which the accompanying drawing (Plate I. fig. 1) is taken,—the amount of shortening and the characteristic deformity presently to be described are faithfully represented. The history of the case is as follows:—Twenty-six days before presenting himself at the hospital, he was working in a sand-pit, when the bank suddenly fell in upon him, breaking his right fore-arm near the wrist, and his left thigh below the lesser trochanter. He was soon after seen by a medical gentleman, who did all that was requisite; placed the limb in position, and supported it with splints. The patient, candidly enough, admits he never attended to the directions of his medical advi-

Fig. 1.



Fig. 2.

ser, but moved the limb about according to his inclination, laying it sometimes on the outside, sometimes supported on pillows forming a double inclined plane, and thus it was subjected to frequent disturbance; nevertheless, union went on rapidly as usual at this period of life,—the more quickly consummating the deformity. By a reference to the engraving it will be seen that the outline of the limb was very remarkable, and formed a considerable arch, embracing in its most prominent part a point a little above the junction of the upper and middle thirds of the thigh, the convexity being directed upwards and backwards; by a careful measurement the thigh bone shows a diminution in its length of somewhat more than five inches as contrasted with the uninjured one. From an attentive consideration of the deformity so strikingly present here, it must be conceded that the lower fragment was drawn upwards, outwards, and backwards, and that the upper also, instead of being inclined forwards and inwards, likewise tended in the same direction, probably owing to the manner in which the force was applied, and the course of the solution of continuity in the bone,—the amount of shortening and the mass of callus thrown out may be fairly ascribed to the obliquity of the fracture. The union between the ends of the broken bone was so firm that the patient could sustain the entire weight of the body upon the limb; and the connecting medium between the broken bones of the fore-arm was quite solid.

Being made aware of the history of the case, the next point to be taken into consideration was, how far surgical interference was likely to benefit the sufferer's condition. The most prominent features of the case, viz.: the age of the patient, the totally useless condition of the member as an organ of locomotion, the length of time the fragments were permitted to grow together in their distorted relationship, and the solidity of the bond of union established, were all maturely weighed, when it was deemed advisable to re-fracture the bone.

On the morning of the 22nd the patient was brought into the operating theatre, and placed lying upon his back on a table, between the posts used for reducing dislocations; a counter-extending belt was then passed under the perineum on the affected side, and its ends fastened to the chain of one post; while a jack-towel, embracing with the clove-hitch the lower extremity of the femur, just above the knee, was connected with the pulleys attached to the other. Chloroform was administered in the usual way, sprinkled upon a warm towel, and its effects rapidly produced; extension was then gradually put in force, and the muscles strained to the extreme of tension; the

limb at the site of the fracture was forcibly moved up and down, and partly rotated, so as to help to break through the uniting callus; by degrees the connecting bond yielded, and after extension was kept up for twenty minutes the curve gradually disappeared, and the limb was brought down to its full length; this being accomplished, Boyer's splint was applied, which maintained fully the required extension. The patient was then carried back to the ward and placed upon a fracture bed covered with a hair mattrass. 3, P. M. Not suffering much pain; administered half a grain of morphia. 9, P. M. No pain; to have the morphia repeated.

October 23rd.—The patient slept through the night, and complains of no unpleasant symptoms; ordered four grains of calomel, and afterwards a saline aperient.

24th. Increased the extension by a few turns of the windlass attached to the end of the splint. To have an opiate at night.

26th. Complains of the foot being sorely hurt by the pressure of the shoe and foot-board; this, however, might be obviated, but there is a greater fault in the splint,—it does not steady the upper fragment sufficiently, being too short to confine the trunk. For these reasons I removed Boyer's apparatus and applied Liston's splint, preserving its full length, and with the utmost precautions against pressure from the perineal belt, and at the ankle. When the limb was so adjusted, the patient expressed himself as much relieved.

November 2nd. Not necessary to remove the splint since last report; the limb holds its full length.

9th. Readjusted the splint, and placed an additional pad externally between the splint and the place corresponding to the fracture.

15th. Reapplied splint, bandages, &c.; not the least deformity.

30th. Removed splint, bandages, &c.; solid and perfect union is established in the most desirable way; there is no trace whatever of deformity, and the full length of the limb is restored; rolled the limb to support the enfeebled capillaries, in order to remove some little œdema of the leg and foot; there is no further necessity for mechanical support to the thigh; the knee-joint is rather stiffened and limited in its motions, from the long extension exerted upon it.

Dec. 11th. Œdema about leg and foot gone, and knee-joint quite flexible; still confined to bed.

18th. Allowed to get up and walk about with the assistance of crutches.

Jan. 10th. The patient can now walk about without any support, and he has not the slightest halt or trace of the original deformity.

The condition of the limb at this time is accurately portrayed in the engraving (Plate I. fig. 2.), taken from a cast which was executed before the young man left the hospital.

I have frequently seen the subject of these remarks since he was dismissed from hospital, and he continues entirely free from any impediment in walking.

Case II.—*Fracture of the Femur below the lesser Trochanter.*

Anne Jackson, aged fifty-six years, admitted into Mercer's Hospital, March 15, 1850. She was thrown down by a car passing rapidly by, and fell upon her left hip; the surface was uneven, particularly beneath the thigh, and she was conscious of the limb being broken from the moment of the accident. The patient was conveyed to hospital six hours after receiving the injury. The deformity was remarkable: the limb, on measurement, was between an inch and a quarter and an inch and a half shorter than the other; it lay everted, and swelling had set in rapidly both on the anterior and outer aspect of the limb, below the great trochanter. On extension being made, the full length of the limb was readily restored, but on being relaxed the deformity was quickly reproduced. On more close examination the solution of continuity could be traced just below the lesser trochanter, and to pass from without downwards and inwards, not very obliquely, but sufficiently so to allow the lower fragment to be drawn upwards and outwards, somewhat overlapping the upper, and restraining it back. When by extension the upper and lower fragments were brought into apposition, and rotation of the leg and foot performed, crepitus was distinctly heard; co-existing with the fracture there were considerable contusion and effusion of blood through the soft parts behind the hip-joint. From the time of admission for many hours the patient seemed to suffer very seriously from the shock, and though wine was freely given to her during the six hours before she applied at the hospital, it required great caution and watchfulness to conduct her through this stage of collapse. She was at once placed on a soft bed with the limb steadied by a long splint on the outside, resting evenly supported and elevated towards the heel, on a gently inclined plane of pillows. A mixture containing ammonia, ether, camphor, &c., was freely administered every third hour, and warm wine and water were given at short intervals; heated jars were likewise

applied to the stomach and sound limb; in a short time she fell into a quiet sleep.

March 17th. Great watchfulness; pulse weak; tongue dry, contracted, and brown; no pain whatever in the limb; ordered to continue the ammonia mixture, &c., and to have six ounces of wine.

18th. Had sleep; pulse better; tongue more expanded and moist; to continue stimulants as on yesterday, and to have aperient medicine, composed of rhubarb pill, blue pill, and carbonate of ammonia.

20th. On this day re-adjusted the mechanical appliances; placed the tail bandage from the toes up to the groin, and the long splint as before on the outer side of the limb and trunk. To continue stimulants and full diet.

21st. The complication of retention of urine, ever since the second day after the injury, was relieved by the catheter at intervals. Had this symptom occurred immediately after the accident, it might probably, and with reason, be referred to some slight concussion of the spine occurring simultaneously with the fracture; but in the present instance, it may be ascribed to the constrained position enjoined on the patient.

22nd. Feels quite comfortable; tongue moist; appetite improved; slept well. The patient has likewise regained the power of emptying the bladder without surgical interference, the incapability having lasted for five days.

25th. Re-applied the splint as before.

29th. Again threatened with sinking and collapse; increased the quantity of stimulants.

31st. Urgent symptoms of depression all gone; pulse again up and steady; tongue moist; every precaution taken to guard against stripping over the sacrum,—perforated air cushions placed beneath the parts exposed to pressure, and the surfaces freely brushed over with a strong solution of the nitrate of silver.

April 3rd. Going on most favourably; now all swelling, the result of the immediate injury about the fracture, is removed, and the upper and lower fragments lie in excellent position.

20th. Re-adjusted splint, bandages, pads, &c., on the 10th, and again on this morning. The case continued to improve; union becoming more and more firm, until finally completed on the 5th of May, when the splints were removed altogether, and on the 10th of the month the patient was dismissed, with the limb preserving its full length, and free from deformity.

Case III.—*Fracture of the Femur partly within and partly without the Capsule.*

Eliza Stafford, aged forty-nine years, admitted into Mercer's Hospital, March 9, 1851. She was walking along the edge of the pathway, and having trod on a piece of orange-peel she slipped off the curb-stone, and pitched forcibly upon the great trochanter of the right thigh. The patient could not move from the ground, and was raised, suffering acute pain at the part referred to, and totally incapable of leaning the slightest weight upon the limb. She was instantly brought to hospital. On removing the clothes, the deformity was characteristic of fracture close to the hip-joint. As she lay upon her back on the bed, the foot and knee were turned out; or, in other words, the right limb was everted; it was also shortened two inches and a quarter. By gentle and continued traction it could be brought down to the same length as the sound one, but on being released, a similar amount of shortening was quickly reproduced; the fulness of the trochanter was comparatively lost; there was prominence on the upper and forepart of the thigh, ascribable to the retraction of muscles; the patient had no power of lifting the extremity *en masse* from the bed; the limb, on being brought down to the full length by extension and then rotated, yielded distinct crepitus close to the trochanter, partly within and partly without the capsule; the line of movement on rotation indicated such a direction. Another point, also, to be taken into consideration was, that the limb, on rotation, moved upon a pivot, the extremity of the trochanter being, as it were, the centre of motion, and not passing through the arc of a circle as described by it when preserving its integrity with the head of the bone. I at once applied Liston's splint along the outside of the limb with all the exactness which it requires, particularly guarding the groin and ankle from pressure. Ordered a full opiate at night, the bowels having been previously well operated on.

10th. Expresses herself as deriving great comfort from the application of the splint; tendency to spasms, which at first threatened, has ceased ever since the limb was put up.

12th. Free from all uneasiness in the limb; by measurement it remains fully the length of the sound one; deformity in front from the retraction of muscles all gone; brushed over the surfaces of the back and sacrum exposed to pressure with a strong solution of the nitrate of silver to prevent stripping; tongue inclined to be a little dry and brown; ordered ammonia, wine, and liberal diet.

14th. All threatened constitutional disturbance gone; to continue stimulants.

22nd. Re-applied splint, bandages, &c., twelve days having elapsed since they were put on: the limb preserves its full length.

28th. Re-adjusted splint, &c.

April 10th. On removing the splint to-day, it appears that union is quite firm; there has been no undue pressure exerted over the groin or ankle, and the limb is fully as long as the sound one; put on the splint as before.

24th. Union quite perfect; rolled the limb and supported it on an even pillow in the extended position.

May 5th. Allowed the patient to move about on crutches, and on the 13th she was able to leave the hospital with the assistance of a walking-stick; in a few weeks after, the patient walked unsupported to the hospital without the least halt.

Case IV.—*Oblique Fracture of the Femur about its Centre.*

Charles Bishop, aged 15 years, admitted into Mercer's Hospital, June 10, 1851. On the day before admission he was wrestling with a school-fellow, who threw him down and fell with considerable violence across him; he was conscious of the right thigh being broken, from the yielding of the limb and the severe pain occasioned at the time; after the fall he lay perfectly unable to move the limb, and had to be raised from the ground and carried home. The patient was brought to hospital on the following morning at visiting hour, when I saw him; the most superficial inspection of the limb at once led to the inference of fracture; the extremity was shortened, the bulk of the thigh increased, and the knee and foot partly rotated outwards; on closer examination the amount of shortening was so great in this young boy as to awaken curiosity in reference to its real extent: on careful measurement it was found to exceed two inches, being occasioned by the obliquity of the fracture, which occupied the middle third of the thigh bone. On handling the displacement and making extension so as to restore the bone to its full length, there was evidence that the force had been applied to the hip and upper part of the thigh —on its outside marked by severe contusions, while the inner aspect of the knee, which was slightly abraded, rested upon the ground. It was clear the course of the fracture traversed from above and without downwards and inwards; and it was also evident that the lower fragment was drawn upwards and a little outwards, overlapping the upper, and thus restraining it from projecting forwards. I at once proceeded to steady the broken

bone; applying the tail bandage from the toes to the groin, and after this Liston's splint along the outside of the limb. Scarcely had the apparatus been adjusted, when the little fellow said he was free from all pain. In a few hours after the application of the splint, being called suddenly to a case of emergency admitted to hospital, I visited the boy and found him in profound sleep,—a sufficient proof of the relief he obtained.

June 11th. Slept nearly all night; has had no startings or uneasiness in the thigh. I may mention here, that sleep was prevented altogether the first night after the accident, by constant spasms, but which have ceased ever since the limb was placed under control by mechanical means.

16th. Neither bandages nor splint have required removal since first put on, and the broken thigh is fully the length of the sound one.

23rd. Re-applied bandages, splint, &c.; the upper and lower fragments of the broken bone lie in admirable relationship, and in such excellent apposition that the most scrutinizing measurement proves no difference between its length and that of the uninjured one.

28th. Union progressing rapidly.

July 13th. Re-adjusted splint, bandages, &c.

29th. Dismissed from hospital; the length of the limb being fully preserved, and the union perfect.

Case V.—*Oblique Fracture of the Femur through the great Trochanter.*

Richard Hayden, aged 63 years, admitted into Mercer's Hospital, Nov. 13, 1851. In coming down stairs he slipped the entire flight, and fell upon the right hip. He was assisted up, and could not stand after the fall; he was instantly brought to hospital. On viewing the case it was necessary to diagnose between contusion, dislocation, and fracture; and the latter whether within or without the capsule. The limb lay everted, immovable, its muscles perfectly firm, under control of the will, and as a sequence the power of raising the limb *en masse* from the bed lost; there were also comparative shortening and fulness at the upper part of the thigh. These symptoms awakened suspicion as to the true nature of the lesion; careful measurement of the injured limb, from the spine of the ilium to the upper edge of the patella, and from the former point to the tip of the inner malleolus, as contrasted with similar measurements of the sound extremity, proved an amount of shortening very nearly two inches; on causing gradual and steady extension to be made in the axis of the limb, by an assistant grasping the leg

above the ankle, and rotating inwards and outwards, distinct crepitus was not only communicated to the hand of the surgeon placed over the great trochanter, but was likewise audible to the bystanders; the very line of the fracture could be traced traversing somewhat obliquely through the great trochanter. I at once reduced the fracture, and maintained it so by placing Liston's splint along the outer side of the limb and trunk, retaining it by suitable bandages. Ordered a full opiate immediately after.

17th. On removing the splint to-day for re-adjustment, the assistant unintentionally relaxed the traction at the ankle, and the full amount of shortening was reproduced as on admission; the crepitus was not so distinct, because the products of inflammation had masked it; put on the many-tail bandage and long splint as before.

20th. The patient has suffered no annoyance from spasm,—an exemption to be entirely ascribed to the early coaptation of the parts.

December 1st. Re-applied splint, &c.; threatened with stripping of the sacrum; parts guarded by the application of a strong solution of nitrate of silver, and the use of perforated cushions.

14th. Consolidation of the fractured bone proceeding rapidly; the amount of callus thrown out exceeds that usually secreted when coaptation of the fragments has been so quickly brought about as in the present instance.

30th. Removed splint, bandages, &c.; union quite firm; patient still restricted to bed.

January 6th. There are two points worthy of remark in this case,—first: the rapidity with which the patient gained command over the muscles of the thigh and leg; and secondly, the quickness with which the functions of the knee-joint, flexion, and extension were brought about. In five days after the above date he was dismissed from the hospital, with no impediment in the limb, and its entire length preserved.

Case VI.—*Oblique Fracture of the Femur below its Centre.*

Thomas Flynn, aged ten years, admitted into Mercer's Hospital, February 26th, 1852. The boy was standing in a car when the horse moved suddenly and rapidly on; the little fellow got frightened and jumped out, and fell forcibly to the ground. On being taken up, it was discovered that his left thigh was broken; he was at once brought to hospital, when I saw him. The outline of the thigh was very considerably altered: it was thicker and much shorter than the right one;

the foot and knee were everted. On manipulation, the femur was readily detected broken a little below its centre; the fracture was very oblique, so much so as to permit shortening to two inches, as indicated by measurement. I drew down the lower fragment, which projected upwards and backwards, bringing it into apposition as nearly as possible with the upper one, which had only deviated a little forwards from the proper axis, owing to the lower fragment taking the position assigned to it; an assistant thus retained them while I applied Liston's splint along the outside of the limb; immediately afterwards the boy expressed himself free from pain.

February 27th. Shortly after the limb was put up on last evening the child fell asleep, and remained so all night. He had no complaint to make this morning either from undue pressure or pain.

28th. Bandages not disturbed; and, though oblique the fracture, the full length of the limb is preserved.

March 1st. Replaced the perineal lac by a fresh one filled with curled hair.

March 8th. Steadily improving since last report. Removed the bandages, splint, &c., now for the first time, a period of twelve days having elapsed since put up; but the perineal lac had been frequently renewed, owing to the child constantly wetting it with urine.

15th. Re-applied splint, &c.

25th. After removing the splint to-day, I carefully contrasted the length of the limb with the sound one—no difference between them; the union is quite firm, and the quantity of provisional callus very small.

29th. Union quite perfect, so dispensed with the splint altogether.

April 2nd. Dismissed from hospital; no shortening whatever.

Case VII.—*Fracture of the Femur external to the Capsule.*

Eliza Lawlor, a cook, aged 50, admitted into Mercer's Hospital, October 8th, 1852. Her statement goes to prove that she fell from a house-ladder, upon which she had been standing, putting some things in a high press; she slipped and pitched upon her right hip, the leg got entangled between the steps, and she fell rather obliquely and with considerable force. After the fall she could not get up from the ground, and when lifted she could not stand upon the limb; she was quickly brought to hospital. On removing the clothes for examination, the rotatory derangement of the limb outwards was

very marked and the shortening very considerable,—on measurement two inches and a quarter. By gentle and gradual extension the limb could be brought down to the length of the sound one, but on traction being discontinued, the entire amount of shortening quickly recurred: the patient possessed no voluntary power over the muscles of the limb, yet I was able to flex and extend it with facility, and to rotate it inwards and outwards with very little force. During the latter movement crepitus was readily elicited, and appreciable almost under the fingers external to the capsule. The prominence of the trochanter was diminished, it was too near the crista of the ilium, and on the limb being rotated, it seemed almost distinctly to move on its own axis instead of describing an arc; besides, the swelling at the upper and forepart of the thigh was remarkable, and over this region, also, the greatest tenderness to the touch prevailed: the shortening in this case was very great, but its excess was the more diagnostic and confirmatory of the extracapsular fracture in contradistinction to that within the capsule; the experience of Boyer, Earle, Stanley, Smith, and others, have now settled this question and set it at rest for ever. Being convinced of the locality of the fracture, and the age of the patient only fifty, I was the more anxious in rendering every assistance to bring about bony union, and at once applied Liston's splint; the greatest comfort was experienced from its support, and all troublesome spasm and pain were relieved.

October 9th. Slept well; the extension is effectually kept up, and the deformity removed; the limb maintains its normal length.

21st. The splint, bandages, &c., were removed to-day for the first time since admission, and more as a precautionary measure to see that all was right than as an act imperatively required.

28th. The patient makes no complaint of undue pressure, though a very considerable amount of extension is required to maintain efficiently accurate coaptation of the broken fragments.

31st. Re-applied splint, bandages, &c., as before.

November 9th. This day removed the splint, and carefully examined the site of fracture: callus is freely thrown out; the full length of the limb is preserved; adjusted the splint as before.

15th. Union progressing favourably.

20th. The case has gone on without a single complication, the mechanical means requiring but seldom to be stirred.

23rd. More than six weeks have passed over since the splint was first put on, and as the repair of the broken bone has been

uninterrupted in its progress, union is firmly established; pressure or motion of the limb in its socket does not produce pain; there is no shortening or deformity of the limb whatever: this has been closely examined into by my colleague, Mr. Tagert. Afforded the limb gentle pressure by a roller from the toes to the groin, and supported it evenly on a soft pillow.

26th. The patient has gained a good deal of motion already in the knee-joint, and is recovering full control over the muscles. Without my permission she made the effort this day to walk on the limb, so as to test its strength, and it fully supported her weight. It is scarcely necessary to add, I cautioned her against a repetition of this rash experiment for some time. As the patient was in comfortable circumstances, she requested permission to be allowed to return home.

There is a good example afforded in this case of what may be accomplished in fracture of the thigh bone close to the capsule, by setting the fracture at once in the straight position, and keeping it steadily and immovably so. I know no treatment which could be so successful in allaying the pain, quieting the spasms, and averting that form of irritative fever so frequently attendant on this injury, and fraught with such peril to the patient.

Case VIII.—*Oblique Fracture of the Femur close to the Knee-joint.*

Mary Murphy, aged fifty-three years, admitted into Mercer's Hospital, September 28th, 1852. A young woman for amusement lifted her from a chair and then tried to run across the room with her; this she was unable to accomplish; she slipped and fell forwards with her burden to the ground; with great force and weight she came upon her knees across the patient's right thigh, instantly breaking it; the fracture was quite audible at the time. The woman was at once removed to hospital, and I saw her immediately after. On examination, the right thigh was considerably shortened; the solution of continuity in the bone was discovered close to the knee-joint, passing from about the junction of the lower and middle thirds of the bone from without downwards and inwards, very obliquely, to just above the expansion of the internal condyle; the obliquity of the fracture permitted an amount of shortening fully two inches, and this created a very striking deformity, more particularly remarkable because in this part of the bone the lesion is usually transverse. I at once applied Liston's splint, modified in the manner hereafter to be noticed, restoring the full length of the limb, relieving the patient from pain, spasm, and apprehension

of agony, from the slightest movement of the trunk. After the application of the splint a full opiate was given.

September 29th. Slept during the entire night free from pain and spasms.

October 6th. Limb lying most comfortably; no necessity for stirring the apparatus.

11th. Necessary to change the perineal belt, from the patient not having observed sufficient cleanliness.

16th. The patient is free from pain, and there is no undue pressure exerted anywhere.

18th. Re-applied splint, bandages, perineal belt, &c. The broken fragments lie closely in contact, and the thigh bone preserves its full length.

27th. Union is progressing most favourably. On contrasting the broken limb with the sound one, there is no appreciable difference as to length between them.

November 3rd. It has not been necessary to re-adjust the splint since the 18th of last month, the perineal belt alone being changed.

12th. Removed the splint altogether, more than six weeks having elapsed since its first application. The union is quite firm; and on the closest investigation and measurement by Mr. Tagert and myself, he pronounced the limb exempt from any shortening whatever, and without the slightest eversion or inversion of the foot; rolled the limb from the toes up to beyond the centre of the thigh, so as to support the enfeebled circulation, and placed a soft cushion beneath its entire extent.

15th. Rolled only the leg, thus leaving the knee-joint free for gentle flexion and extension, and exposed for the application of a simple liniment.

20th. Nearly the entire action of the knee-joint is restored; the patient is able to bend the leg fully to a right angle with the thigh, and is rapidly gaining command over the muscles of the entire limb. Still confined to bed.

25th. Permitted to get up and move about with the assistance of crutches. In a few days she left the hospital with the limb perfect in all its functions.

There is one point of great value to be remembered in this case, namely, by the early coaptation and perfect adjustment of the broken bone, the throwing out of a large mass of callus was prevented; had this taken place to any extent, it might, from the proximity of the fracture, have afterwards interfered with the functions of the knee-joint. To this practical fact I have already alluded, when writing on fractures in the vicinity of the ankle-joint.

Case IX.—*Fracture of the Femur through the great Trochanter, nearly transverse.*

William Gray, aged forty-three years, admitted into Mercer's Hospital, October 26, 1852. He was found by the police lying drunk in the street, protesting loudly that his thigh was broken; he was instantly brought to hospital. On stripping the patient, it was observed, that his left lower extremity was both shortened and wasted, as contrasted with the right limb, and lay partly everted. On careful manipulation, the limb being drawn down gently and steadily, crepitus was discovered through the great trochanter while the act of rotation was performed; and though this diagnostic feature was distinctly elicited, the limb was not restored to within three-quarters of an inch of the length of the sound one; there was such regularity of its outline, however, I did not hesitate to apply Liston's splint, after the method which I am in the habit of adopting. On the following morning, when the effects of the debauch had passed away, and the patient recovered his senses, I ascertained from him, that he had no remembrance of the occurrence whatever, or the mode in which the accident occurred; at the same time he informed me, that the left limb, ever since he was a boy, was much thinner than the other, and that it was also three-quarters of an inch shorter, the truth of which assertion he proved by having his shoe shown, the heel of which was raised considerably beyond that for the sound foot, so as in some measure to rectify the deformity. This shortening and wasting of the extremity the patient attributed to the effects of a very extensive burn which he experienced over the left loin and upper two-thirds of the corresponding thigh when a boy; the white, silvery cicatrix marking its destruction fully attests its severity. Being anxious again to examine the condition of the fracture, I removed the mechanical support; shortening was produced at once to three-quarters of an inch, the foot being only partially turned outwards; the site of the fracture was confirmed, as in the first instance, traversing the great trochanter; there was great tenderness felt over the part, and the patient was entirely incapable of lifting the limb from the bed; but the most characteristic symptom present in this instance, and one not usually to be met with, was, the upper part of the trochanter did not obey the motions of the limb during rotation; it was clear that great violence had been inflicted to cause this lesion, as the parts around were extremely ecchymosed. With the aid of an assistant, I restored the limb to the same position in which I

had placed it at first, and applied Liston's splint to retain it so. The patient immediately experienced great comfort.

28th. The patient slept steadily through the night, and free from all spasms.

30th. Going on most favourably; free from all pain. As the patient possesses ample means, he requested permission to be removed home, and solicited my attendance. He was removed from the hospital in a cart, and conveyed several miles without the slightest disturbance of the fracture, or displacement of the splint which I had applied three days before.

31st. Visited the patient after his journey; he has not suffered the least irritation from his removal. I did not think it necessary to re-adjust the splint.

November 3rd. Replaced the pelvic band.

24th. This case has gone on from the commencement without any complication. Re-adjusted the splint for the first time since it was put on twenty-nine days ago.

30th. Removed the splint, now five weeks after the occurrence of the fracture; and it is remarkable, how far the consolidation of the union between the broken fragments is accomplished; the limb fully preserves the length it was before the accident; and the foot, leg, and lower fragment hold their proper direction without the slightest deformity of any kind. Re-applied the splint as before.

I have no doubt that the limb will be as useful to the patient as it was before he met with the accident. I have stated that the union is already nearly completed, and the man promises to be cured in the ordinary time required for the reparation of a broken thigh.

The most prominent points of interest in Case No. 1. are, first, the site of fracture and the nature of the deformity; secondly, the re-fracture of the united bone. In fracture of the femur occurring below the lesser trochanter, it was first strenuously laid down by Sir A. Cooper, that a great prominence in front characterized the accident, occasioned by the upper fragment being lifted forwards and upwards by the action of the psoas and iliacus muscles. He says, "the thigh-bone is sometimes broken just below the trochanter major and minor; it is a difficult accident to manage, and miserable distortion is the consequence if it be ill-treated. The end of the broken bone is drawn forwards and upwards so as to form nearly a right angle with the body, and the cause of this position is evidently the contraction of the iliacus internus and psoas muscles." Ever since this paragraph was written, its substance has been

copied into almost every work on surgery without comment. I do not mean to say, the upper fragment never projects forwards, but I deny altogether the frequency of its occurrence. Sir A. Cooper even gives a plate showing the abnormal projection of the superior fragment, and says, "a better idea of the effect of this accident may be obtained by a view of the plate, in which the bone will be observed to be united not only with extreme shortening, but with a hideous projection forwards." Now in the case of Toole, there was no doubt of the bone being fractured just below the lesser trochanter; from the axis of the fragments, and their point of junction, it was concluded so; and from their re-fracture it was confirmed, because the callus yielded at that part corresponding to the original separation. Yet here, in this instance, though the parts were left uncontrolled, owing to the unsteadiness and irregularity of the patient, there is no projection forward of the upper fragment, but there is "horrid deformity" created by the bones being dragged outwards, and forming an angle salient in that direction. The plate referred to by Sir A. Cooper merely shows the lower fragment drawn up nearly to the root of the great trochanter, and united there; the preparation is said to be in the Museum of St. Thomas' Hospital; but of this specimen there is no accurate information recorded.

In Mr. Hind's book, "On the Causes of Displacement of the Bones of the Extremities in Fracture," the following description is given of this fracture: "The displacement is greater in the upper than in the lower portion of the bone; it will be found projecting almost at a right angle with the pelvis, producing the elevation already described in consequence of the actions of the psoas magnus and iliacus internus." In accordance with these words, we also find a plate in the volume, showing the relative position of the fragments, the upper riding over the lower; but there is no proof given that such a specimen ever existed, from which the drawing might have been taken.

Now in the case of Jackson, No. II., there was clear evidence of fracture below the lesser trochanter, traversing from without, downwards and inwards, with considerable obliquity; so as to allow the fragments to pass each other, the lower being drawn upwards and outwards, contrary to what usually occurs, owing to the action of the adductors preponderating; in this instance, all anterior projection of the upper fragment was prevented by the lower resting upon it; in Case No. IV. we have evidence of an almost exactly similar displacement, and the same force counteracting deformity. I may state here, that

Mr. Tagert, Senior Surgeon to our hospital, whose opinion on all points relating to practical surgery is, from his vast experience, entitled to great weight, mentions, in his Lectures, that he has never seen the deformity even approaching to the extent portrayed by Sir A. Cooper, and in the large majority of cases it is altogether absent in the anterior direction.

Still further in support of my opinion as to the rarity of the projection of the upper fragment, noticed by Cooper in the special fracture under consideration, I lay great stress on the following evidence: specimens that speak out for the truth. In the Museum of the Royal College of Surgeons the following preparations are preserved, and noticed as follows in the catalogue:

E. A. 554.—"Fracture of the left thigh bone in a female below the trochanters. Complete osseous union has been established. The fracture was very oblique, and of such a shape, that the upper end of the shaft lies consolidated in a wide and deep groove, four inches in length, in *front* of the superior fragment, which consisted of the head, neck, and both trochanters. In this case the inferior fragment formed the projection felt at the upper part of the thigh."

E. A. 555.—"Fracture of the right femur in a large man; healed with considerable deformity. The fracture was close beneath the trochanters, very oblique, and overlapping. The upper extremity of the lower fragment stands forwards, and rises as high as the neck of the bone."

E. A. 559.—"Fracture of the left femur in a young man. The fracture extended from within and above obliquely downwards and outwards from below the trochanter; has been completely and smoothly united; the upper extremity of the lower fragment formed the principal projection in the groin, being nearly in front of the upper."

E. A. 580.—"Fracture of the left os femoris of a man, close under the trochanters, firmly united by bone; the lower fragment projects forwards, and makes a tumour in the groin; the upper part of the shaft stands *outwards*."

There is another specimen in the College, where the upper fragment stands outwards. E. A. 582.—"Oblique fracture of the femur below the trochanters. The shaft is elevated and thrown to the inside of the upper piece, which makes a projection towards the outer and anterior part of the thigh; the union is firm and very unseemly."

In the Museum of the Original School of Medicine there is a fine specimen of a very remarkable fracture, occurring below the trochanters, which Mr. Ledwich was kind enough to show

me. In this preparation the superior fragment lies in front of the lower; from the anterior surface of the shaft of the bone a third piece was detached, fully three inches long, which was displaced upwards; it never after regained its normal position, but became united as a wedge between the two fragments, producing prominence of the upper, which must have been remarkable during life. All are bound together by a thick bond of callus posteriorly.

Amongst all the preparations of fractures, traversing the upper part of the thigh bone, and in which the pathological department of the Museum of the College is very rich, there is not a single specimen where fracture has occurred below the lesser trochanter, which exhibits the superior fragment lying in front of the lower, while, as already observed, there are several to prove the converse of the proposition. Again, there is not a specimen to demonstrate a transverse solution of continuity in the bone below the trochanters—all are alike characterized by their obliquity and extent of fracture. I have stated before that I do not mean to deny the possibility of the upper fragment projecting in the groin; but I cannot bring to my mind or find in my note-books a single well-marked case where the distortion could be attributed to such a cause. Circumstances may conspire to produce it: the direction of the force, most probably when applied from behind; youth—for at this period when the bones yield they break more transversely than in after life;—such a sequence is most likely to disentangle the upper fragment, and leave it free to the action of the psoas and iliacus muscles.

The second position to be considered in the case of Toole is in reference to the re-fracture of the bone. It has been already stated that the limb was useless in progression, being somewhat more than five inches shorter than the sound one. Thirty days had elapsed from the period of the accident, and the union was quite solid, sufficiently so to bear the weight of the body. The breaking of the callus in fractures badly consolidated is a very ancient practice, and highly extolled by many. And it was not until about the beginning of the last century that Petit and Heister so strongly objected to it, and Boyer and Callisen easily succeeded in causing it to be generally proscribed. Richerand, however, amongst the moderns, believed in its utility, but confines its application to cases where the deformity is excessive, and where it is urgently demanded by the patients. In Germany, however, we have very strong evidence in its favour. M. Oesterlen, in his endeavour to demonstrate the advantages of the rupture of the callus, has collected in his book several

instances, not only derived from his own practice, but from that of surgeons in neighbouring Cantons. The rule upon which Dupuytren acted in those cases was consonant with his views respecting the formation of callus; he concluded that, in general, it might be considered practicable to overcome the resistance of the callus within a period not exceeding sixty days from the receipt of the injury; but that exceptional instances prove that this operation has been successful even after the lapse of a much longer interval of time. Dupuytren relates several cases in his "Leçons Orales de Clinique Chirurgicale," where he removed serious deformities by mechanical force,—with splints, compresses, bandages, &c. But the mode by extension, counter-extension, and forcibly moving and rotating the limb,—that practised in most of Dupuytren's cases, and so successfully in mine,—will not always succeed, and then we must proceed to more severe measures.

It is important on this subject to divide the deformities into two classes, according as they are merely a shortening of the limb, or where the bone is consolidated with an angular deformity. Velpeau says, the rupture of the callus in the first case should not be attempted after the third month of the fracture. At a later period we should have to fear the fracture of the bone in a sound portion, as well as in the diseased part, and we may well conceive that there would then result no advantage from it.

When the callus is angular to the degree of interfering to a considerable extent with the functions of the limb, Velpeau approves of its being broken, no matter how ancient the consolidation may be. Numerous apparatus and various processes have been contrived to arrive at this result. M. Oesterlen has given a figure of one of these. It consists of a strong wooden bar, from the extremities of which two metal stems pass down, each of which terminates in a pad concave below, and to which is attached by straps another pad concave on its upper surface. These pads, and along with them the whole instrument, are firmly fastened on the limb, by tightly buckling the straps in such manner that the seat of the fracture occupies the middle point between the two metal stems. From the part of the bar midway between the two stems another metal stem, terminated by a pad, passes down, which, when the instrument is applied as directed, will correspond exactly to the callus. With the middle stem is connected a winch, by which, in the operation, the pad is brought suddenly and forcibly to bear upon the callus, so as to rupture it. M. Oesterlen adduces many cases in proof of the safety with which the fracture may be reproduced by means of his invention, which certainly admits of the

application of a greater force, and one that can be much more nicely regulated than the rude methods of the old surgeons. It is obvious that this method is adapted to those cases chiefly in which the deformity is angular, or rather to cases in which we may anticipate the line which the secondary fracture will assume, and in which the rupture of the callus will enable us to restore the proper form of the limb with little extension.

Velpeau's method is very simple: he says it almost always answers in angular deformity to fix the affected limb on its concave part to a solid plane, while we suddenly press down upon it, with the knee or the two hands placed upon its convex part. Having effected the rupture, we then must extend the part as much as possible, and retain it so until it has acquired its natural strength. Even this will not always answer: and excision of the angular callus is sometimes preferred, as recommended by M. Clemont;—the first time he performed the operation on a young child, and the second time on an adult. In both cases it was a femur, bent into an angle, in consequence of former fractures badly treated. The surgeon laid bare the osseous projection by an incision sufficiently long, removed by two cuts of a saw a wedge from the femur, re-adjusted the limb, re-united the wound, and afterwards applied the ordinary dressings for fracture of the thigh; the two patients recovered perfectly[a]. It must be conceded, however, that to Dr. Barton is due all the credit of this operation: for the *wedge principle* is precisely the same, whether to remedy a permanently angular or flexed position of the limb from an anchylosed joint, or a badly treated fracture.

The foregoing cases afford evidence of oblique fracture occurring almost in every part of the thigh bone; and each alike equally amenable to treatment, on the principle of extension by the long splint, even in the fracture taking place below the lesser trochanter, should there be displacement forwards, which, as I have pointed out, under certain conditions may occur, though rarely; yet it, too, may be made subservient to a similar plan of treatment, as proved from the following interesting case given by the late Dr. Houston:—

"Ellen Kelly, aged 13, was admitted into hospital on the 17th June, 1835, with fracture of the right thigh, close beneath the lesser trochanter. Two days had elapsed before she was brought to hospital, and during this time she had been allowed to lie on the side, with the limb in the flexed position; no other mechanical means had been used to bring the bones into apposition,

[a] Archives Générales de Médecine, 2me Serie, tom. xi. p. 235.

or to preserve them against being moved by the action of the muscles. The girl had, in consequence, suffered much from spasm; the limb was swollen to more than double its natural size; vesications had also formed on several parts of the skin; and there was severe symptomatic fever. The upper fragment projected much forward, and gave to the thigh a curved appearance. The same position as that in which she had lain before admission was persevered in; and under the use of refrigerant applications a considerable reduction of the inflammation was effected by the end of the fifth day from the occurrence of the accident; but, nevertheless, during all this period a night-nurse was obliged to sit by the bedside, with her hand on the broken limb, which otherwise, on every attempt to sleep, awoke the patient with a spasm. On the morning of the sixth day she was turned on the back; the broken limb was pulled to the same length as the sound one; permanent extension was kept up by Desault's splint, applied on the outside; a corresponding long splint was placed along the inside, and a short one was laid on the front, so as to make pressure on the projecting end of the broken bone. Long pads of bran were interposed between these and the limb, and the whole secured together by broad straps and buckles, in such a manner that the limb was subjected on every part to moderate and uniform pressure.

"The business of altering the position of the patient, and of setting the fracture, was productive of much pain; and no doubt, had the operation been practised in the first instance, not only would the amount of suffering caused by it have been comparatively trifling, but most probably the distressing spasms and inflammatory swelling, borne during the first five days, might have been averted; for, from the moment in which the limb was settled, as has been just described, all tendency to deranged action of the muscles ceased, the girl slept soundly, and the tumefaction rapidly subsided. She expressed herself as much more comfortable in her new than in her old position, and got well rapidly, without any farther untoward symptom. She walked out of the hospital on the 20th of August, without any appreciable difference, as to the shape or length, between the unbroken and mended limb."

Dr. Houston goes on to say:—

"The treatment, by permanent extension, of fractures of the femur close to the trochanter, is not, it will be observed, that which is usually practised in such cases, but it was here most completely successful; and I might state other instances in which I have adopted it with equal effect. I might also

mention cases of a similar kind, in which the plan of keeping the limb in a state of complete flexure, all through the period of healing, was followed by an opposite result"[a].

The best criterion of any plan of treatment is the efficiency with which it fulfils the required object. In the nine cases recorded, it will be seen all were cured without the least eversion of the foot,—a distortion so frequently produced by the treatment with the double inclined plane; in all, though oblique fractures, the limb was restored to its full length, and in a short time the motions and functions of the neighbouring joints perfect. I have seen in the hands of others this method equally successful: then great was my surprise to read in a volume, not long since issued from the press, the following observations:—"During the attendance of Mr. Abernethy on St. Bartholomew's Hospital, his custom was to place all patients with fractured thigh upon the side, according to the practice of Mr. Pott, bending the thigh on the pelvis, and the leg on the thigh; and I cannot find the practice of the present day more successful than his"[b].

There is not a book on modern surgery but discards Pott's views and mode of treating fractures of the thigh; because they are incapable of fulfilling the indications of cure, and if persisted in, are almost in every instance followed by pitiful deformity: the method is renounced by every modern surgeon for a better line of practice eminently successful; and why Mr. Skey has not advanced with his contemporaries I cannot pretend to answer.

In Case viii., where the femur was split very obliquely above the knee-joint, the double inclined plane, as favourably recommended by Sir A. Cooper, was quite useless,—extension, and that with considerable force, was imperatively required to counteract the fragments passing each other, and this was gratefully afforded by the long splint.

The mechanism adopted by Desault and Boyer, for keeping up permanent extension, were appliances most successfully employed by these celebrated surgeons; and although complicated and cumbersome, yet they were useful on a like principle, though not to the same extent as the apparatus now in most general use, as simplified and improved by the late Mr. Liston. Many, indeed, have been the additions made to Desault's splint. Van Houte's alteration of it is for the purpose of keeping up extension in the long axis of the limb, by means of a cross

[a] Houston, in Dublin Journal of Medical Science, First Series, vol. viii., Art. xix.
[b] Skey's Operative Surgery, p. 168.

board connected at right angles with the splint. Similar to this, except that to the cross board an inner splint is fastened, is Volpe's machine. Also Josse's apparatus, with a peculiarly arranged bed; Meyer's machine; Physick's apparatus, in which the external splint is continued to the arm-pit; that of Houston; also Alban's machine, which consists of a strong splint fixed on the outside of the ailing limb and to the pelvis; the extension is effected by means of a kind of lever contrivance at the lower end of the splint[a].

Of all methods of treatment that by the simple contrivance of Liston, modified, as I shall presently notice, is the most comfortable to the patient,—preventing eversion, shortening, and deformity; and the mechanism is so applied, that the trunk, pelvis, thigh, leg, and foot constitute one rigid body, which may be moved entire, but the component parts of which being immovable, *inter se*, preserve the same mutual relation. I have proved the advantages accruing from the appliance of this splint in every form of fracture to which the thigh bone is liable from without the capsule to the lowest part of its shaft. And, had I wished to transgress the bounds which I have marked out for myself in this paper, I could easily have given cases where it proved of most essential service in steadying the parts in fracture of the cervix femoris occurring in old subjects; as also in soothing and allaying the spasms consequent upon ulceration occurring in the cartilages of the knee and hip joints.

Liston gives the following description of his splint, and directions for its application:—"The apparatus consists of a plain deal board, of a hand's breadth for an adult, and sufficiently strong; narrower and slighter, of course, for young patients. It is made to suit the particular subject of the injury, to extend from opposite the nipple to three, four, or five inches beyond the sole of the foot. It is perforated at the upper end by two large holes, and provided with two deep notches at its other extremity; a sufficient hollow or perforation is made opposite the malleolus. A pad of corresponding length and breadth is attached by a few pieces of tape; a roller is split at the end, and having been tied through the openings in the top part of the splint, is unrolled so far, and fixed for a time to the lower end of the pad. Reduction having been effected by a little gentle and continued extension of the limb, while the pelvis is fixed, the position is preserved by an assistant placing one hand over the dorsum of the foot, and the other upon the knee; a narrow roller is applied from the toes to a little below the

[a] Chelius' Surgery, by South, vol. i. p. 569.

site of the fracture, with a moderate degree of tightness, to prevent infiltration of the limb, in consequence of pressure by the perineal band, which is now placed under the patient: it consists of a large soft handkerchief or shawl, containing the necessary quantity of tow or wadding, and covered with oiled silk. The splint is then laid along the outside of the limb, and the roller already spoken of is passed under the sole of the foot, and turned round the ankle and heel. These parts are previously thickly padded with tow, cotton, wool, or wadding, to prevent the painful effects of pressure, as upon them the resistance to the extension principally falls. The roller is carried repeatedly through the notches in the end of the splint, as it is crossed over the dorsum of the foot, and ultimately turned round the limb to near the groin. The object in pursuing this plan must be apparent: by the attachment of the end of the roller, and its subsequent arrangement, the apparatus is prevented from slipping upwards, and is made, as it were, of a piece with the limb. The ends of the perineal band are passed through the perforations, drawn with moderate tightness, and firmly tied; and a few turns of a broad bandage round the pelvis and chest complete the proceeding"[a].

Numerous disadvantages are laid down by writers, as resulting from the use of Liston's splint. It is stated that permanent eversion is likely to occur; that inversion of the foot, knee, and lower fragment may take place, the result of rotatory displacement; that much of the force necessary for extension is lost, owing to the obliquity of the counter-extending belt; that the ankle and groin are likely to suffer from pressure; that the pressure made across the groin causes great œdema of the whole limb, in consequence of the obstruction which is caused to the circulation in the inguinal veins and absorbents; and lastly, the objection made by Earle, that the limb being bound to a perfectly straight body, placed at the outside of the thigh, and considerable pressure made on the inner side of the knee in fractures of the shaft of the bone, tends to destroy the natural obliquity of that part, and bring it more into a straight line, which he states is not only destructive to the symmetry of the limb, but impedes progression, and renders the erect posture less secure. No doubt some of these untoward results arise from an inefficiency in the splint to accomplish all that is required, while others are created by its not being properly adjusted. To remedy these defects, I offer to the profession a modification of the splint, that which I have been in the habit of using,

[a] Liston's Operative Surgery, p. 88.

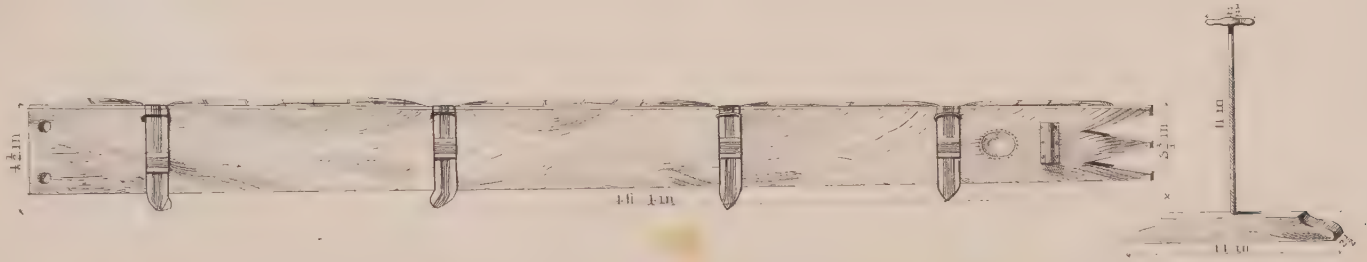
and, as proved by the foregoing cases, with the very best results. I am happy to say it has met with the warm approval of my colleague, Mr. Tagert.

The alteration is very simple, and consists in the addition of a piece of wood placed in a transverse direction beneath the lower end of the splint, and upon which its edge rests. The splint is steadied in this position by means of a long screw conveyed through a socket rivetted vertically on the side of the splint. The upper end of the screw has fitted to it a brass handle placed across, while the lower end terminates in a cylinder which is received into the centre of the piece of wood, and fastened in a hollow beneath by means of a nut and washer. The cylinder, as contrasted with the screw, is somewhat contracted, and presents at its commencement a shoulder which rests upon the steel plate on the upper surface of the transverse piece of wood, while the remainder moves freely in the tube for its reception. From this it must follow that, by a few turns of the screw, the splint may be elevated or depressed at pleasure. Another advantage resulting from this mechanism is, the facility with which the splint can be reversed, the screw changed, and its adaptation to either limb effected.

Plate II. shows the proportions to be observed in the form of the splint. It may be made of seasoned pine; its length, as will be seen presently, must be in accordance with the height of the patient. The length of that represented in the drawing measures four feet four inches; the widest part at its upper end being four inches and a half, which gradually diminish downwards to three inches and three-quarters opposite the ankle. It is eight lines thick, and is deeply notched at the lower end to the depth of four inches; whilst it is pierced at the upper by two circular holes, two inches and a half apart. There is cut in the lower end of the splint, corresponding to the outer ankle, an oval aperture, the centre of which is eight inches and a half from its extremity; and the socket for the screw is placed midway between its circumference and the acute angles formed by the notches. The length of the transverse piece of wood is fourteen inches; its breadth two inches and a half, and its depth two inches. The height of the screw above it measures eleven inches; and the length of the cross handle two inches and a half. A long cushion, somewhat wider than the splint, is applied to its inner surface, and extends from the apertures above to a point opposite the attachment of the screw. This cushion is retained in position by four straps and buckles; it is stuffed with horse-hair, and perforated for the reception of the ankle. The corresponding hole in the splint has tacked into it

Mr Butcher's Modification of Liston's Splint

Plate 2



a pad, softly filled with a like material, and covered with chamois leather.

The application of the apparatus, modified as I have described, is almost exactly in accordance with the directions given by Liston,—the screw and transverse piece of wood being detached, the splint is applied nearly in a similar manner; there are, however, some cautions to be observed in its adjustment which he has not adverted to, yet a strict observance of which I consider absolutely essential, that the same satisfactory results may be obtained as followed in the embarrassing cases that I have detailed.

First, as to the preparation of the splint, and the guarding of the ankle from pressure. It has been stated that the splint is perforated, and has, adapted to the aperture, a soft chamois cushion; that a suitable pad extends along its inner surface, with a similar opening for the reception of the outer malleolus; but this not enough; there is also an additional pad, of variable thickness, required to lie between the outer surface of the knee and the padded splint; or, in other words, to fill up the space between them occasioned by the natural obliquity of the thigh bone, this, of course, from the breadth of the pelvis, greater in women than in men. The next point is, that the limb should be drawn down to its full length, the broken bones coapted and retained so by assistants, the ankle, heel, and dorsum of the foot rolled with soft wadding, the depression above the outer malleolus obliterated by additional folds of it, and the entire supported with a roller neatly applied from the toes to above the knee; then the ankle may be lashed to the splint, the surgeon taking good care that the turns of the bandage be even above the ankle, and secure the heel closely to the splint; if this be correctly done, eversion of the foot will be prevented. The ankle being thus fixed, and extension at the same time fully kept up, the perineal band is to be applied; this lac must be made of soft material and well stuffed, at the same time that a strong piece of tape is stitched along its entire extent, from one end to the other, to prevent its yielding; in its application care should be taken that it lies evenly up against the ramus of the ischium and pubis, that when the ends are brought through the holes at the upper part of the splint to be tied, they may be drawn on with an equal force; because otherwise the integuments will be wrinkled, and quickly excite much irritation. Until the lac is tied the required extension should be kept up by an assistant at the ankle, so as to obviate the reprehensible practice of thrusting the splint with the lower part of the limb downwards; for if this manœuvre be employed, the folds of

the bandage connecting the splint to the ankle are more or less altered in their direction: they no longer lie even, their upper edges constrict the part, and the skin is unevenly strained; if so, it soon irritates, inflames, and becomes so exceedingly painful that the patient demands the removal of the dressings altogether. The great advantages obtained from the length of the splint being preserved can be appreciated when the lac is applied; the counter-extension is directed exactly as the extension, in the most favourable line,—the axis of the thigh bone; because, as before noticed, its inclination is slightly inwards; from this direction then it follows, not a particle of force is misdirected or lost. Again, with regard to the holes for the reception of the ends of the counter-extending belt, I have mentioned they should be two inches and a half apart, or, more correctly, close to the edges of the splint; this favours the proper axis of traction, and takes the pressure in some degree from the trunk before and behind. From preserving the full length of the splint greater advantages still flow. In fractures of the thigh bone, approximating the hip-joint, the upper and lower fragments cannot be pressed upon and forced out by the perineal belt, because its action is directed upwards; this occurrence may take place if the splint be short, and applied as is usually represented in books; but if adjusted as originally intended by Liston, and according to the directions I have given, no such untoward result can follow. Besides, the pressure of the perineal bandage occasions no uneasiness when directed upward; while on the contrary, if strained outwards across the groin to reach the splint, undue pressure is made on the tender integuments, veins, and numerous lymphatics of this region, and, above all, against the sharp edge of the adductor muscles. The foregoing objections fully apply to Boyer's splint; the pressure of the counter-extending belt cannot be borne, and it must displace the fragments if the fracture be situated high up. After the requisite extension has been secured, the next step is to turn a roller round the limb and splint, commencing at the ankle and continuing it to about the centre of the thigh: during this proceeding it is necessary that the limb be fairly supported, and not permitted to gravitate backwards. A few turns of a wide bandage are likewise made to encircle the trunk and upper part of the splint, and pinned to the counter-extending belt before and behind it. It only remains now to pass the screw through the socket, and attach to it the transverse piece of wood in the manner already described, and the apparatus is perfected, so as altogether to preclude the possibility of inversion or eversion of the foot and lower fragment. It will be observed, by a re-

ference to the plate, that the splint is raised at its lower end from the mattress, by the depth of the transverse piece of wood, and a thin pad fills the intervening space. By this arrangement the foot is somewhat elevated beyond the rest of the limb, and the returning circulation favoured.

Frequently, when a patient is under treatment for fracture of the thigh by the ordinary method with the long splint, he will complain of pressure at the heel, owing to the limb resting for a length of time on its posterior surface; this unpleasant contingency is entirely obviated by the simple employment of the screw as applied by me; for by a few turns of it any required elevation may be attained, and another annoyance is likewise removed by the transverse handle bearing off the weight of the clothes from the foot. Lastly, from the treatment by continued extension, as I advocate its application, I have never seen troublesome abrasions, relaxation, or weakness of the ligaments of the knee or ankle-joint to result.

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Art. III.—*Observations on some Points relative to Continued Fever, together with Remarks on the Treatment of the Intestinal Affection by Injections of Nitrate of Silver.* By George Yates, Birmingham, Member of the Parisian Medical Society, Secretary to the Birmingham Medico-Chirurgical Society[a].

Although Birmingham is happily exempted to a great extent from continued fever, as compared with other towns which, like it, are densely populated, and with certain parts of the country more obnoxious to its ravages, still, the subject is one that has always occupied the attention of the profession, not only on account of the great mortality it annually occasions among the lower orders, but because of the various opinions and contending theories that have been raised for the purpose of solving the mystery overhanging its origin and progress. There is perhaps no disease treated by medical men, whether in hospital or private practice, which entails upon them more trouble and anxiety than the one under consideration, and so much uncertainty prevails as to the mode of treatment, that in many cases we either rely upon the expectant system, or, what is worse, we counteract, it may be by our excessive painstaking, the natural efforts in the right direction. But previously to entering upon an exposition of certain views as to

[a] Contributed to the Medico-Chirurgical Society of Queen's College, Birmingham.

the presumed nature of the course of the disease, I will make a few general observations.

From some experience, extending over a period of nearly three years at the Bedford Fever Hospital, my attention was directed to the circumstance of the protracted period before convalescence was established in certain cases, where a severe abdominal complication had been manifested, notwithstanding the adoption of different plans of treatment recommended by the highest authorities:—such as the administration of acetate of lead and opium by Dr. Bardsley, of Manchester, and Dr. Stokes; turpentine enemata and stupes, highly spoken of and used by Dr. Graves; leeches to the lower part of the abdomen and blisters, independently of the use of wine and of a tonic treatment, usually adopted during the continuance of debility. The abdominal complication constituted by the affection of Peyer's glands is too well known to be called in doubt; and though it cannot now be considered, as it formerly was by Broussais, to be the proximate cause of fever, yet it is so common an occurrence in many epidemics, and plays so important a part in the course of the disease, that it has naturally occupied much attention.

As medical science has progressed, it has been found that local complications of particular organs arise, and pathological changes have been noted, which, to some certain extent, have led to a solution of certain difficulties. Of these local complications, the general are, partial softening of the brain; mere congestion, independent of further alteration; opacity of the arachnoid, with softening of the cerebral structure probably arising from inflammatory exudation, as well as the simple non-inflammatory softening of the cerebral structure. The congestion just alluded to has generally coincided in my experience with severe pulmonary mischief, of which there are several forms,—such as hypostatic congestion; general engorgement, frequently considered as dependent upon inflammation, but which in many cases is nothing more than a passive congestion; hepatization, which sometimes affects the greater part of the lungs, or is observed in patches disseminated through their structure, which has been observed by me in several cases where the symptoms during life were more closely connected with cerebral complication, evidenced by heat of scalp, conjunctival injection, low muttering delirium, increased at intervals with frequent attempts to get out of bed. Though in cases where a cerebral lesion was observed, irrespective of mere congestion the probable cause of which has been referred to, the headach was more persistent, but without flushing, conjunctival injection, and heat of scalp;

the delirium was more violent and continuous; the pupils, one or both, being occasionally contracted before death; when a post-mortem examination showed the existence of extensive or partial softening, probably atrophic, from the remarkable paleness of the cerebral structure, and from the absence of all signs of inflammation in the membranes.

It was, I think, first noticed by Dr. Stokes, how rapidly the lungs were occasionally consolidated during the course of certain epidemics of fever, a few hours being sufficient to bring about this effect; and until within a recent period, this hepatization, as it was termed, has been considered the second stage of an intercurrent pneumonia. The appearance in many cases seems to justify this view of the matter: the lungs being friable, sinking in water, and resembling the structure of liver; which are the characters of the *hépatisation rouge*, or Laennec's second stage of pneumonia. It is a curious fact, if this be the case, that the third stage of the disease has never, I believe, been noticed in fever; and this circumstance, coupled with a peculiarity in one pathological specimen I observed, where the structure of the lung, instead of being friable, was so firm as to bear the strongest pressure without breaking down, raised doubts in my mind whether this alteration has been properly referred to its correct cause. Dr. Baly has noticed the same peculiarity in fever; and though the lobular pneumonia is somewhat analogous to it, yet the condition of the lungs in infants, who have not inflated the air passages, seems to partake more of its intrinsic characters,—atelectasis infantum. Dr. Stokes has also noticed an affection of the heart where softening has occurred, and the organ has become so flabby as for its apex to be easily invaginated when placed on its base, the structure presenting on section a glistening aspect. The diagnosis of this affection, and the peculiar indications it affords for the administration or otherwise of wine, are most ably treated by the same physician[a], but are beside the present inquiry.

In reference to the appearances observed in the abdomen,—ulceration of Peyer's glands occupies the most prominent place; and it, there can be no doubt, is of very frequent occurrence in fever, though from its insidious commencement and course it may escape detection in some cases, and, according to the best authorities, is not present in certain epidemics; but, as far as my experience goes, I can bear testimony to its unmistakeable presence, with three exceptions, in all the fatal cases during my residence in the Bedford Hospital, when it was observed

[a] Dublin Journal of Medical Science, First Series, vol. xv. p. 1.

in all its stages, varying from the incipient enlargement of the agminated glands and follicles in the small intestine to the existence of large ragged ulcers and distinct warts, associated with a disorganized condition of the mucous membrane, and attended in two cases with perforation. The mesenteric glands were usually found enlarged, and the lining membrane of the stomach and œsophagus was in one case of a dark reddish-brown colour; but ulceration of the latter, as observed by Louis, did not fall under my notice. The spleen was usually very friable, and easily converted into a soft pulp.

Whatever opinion may be entertained of the connexion of the abdominal complication by different authorities, whether in the light of cause and effect, or an accidental element in the disease, in the majority of cases it is certainly the cause of the long and protracted delay that too frequently is occasioned before convalescence is established; where the patient is harassed with diarrhœa, the tongue and skin remaining dry for several consecutive weeks; and emaciation and debility are not arrested by the generous use of wine, tonics, and nutritious diet; and even if the diarrhœa has ceased, there is frequently left behind a degree of tenderness which may be looked upon as a decided indication of latent mischief, and the more so if the femoral vessels on the same side are pulsating strongly. The appearance of patients who have been suffering from fever of some weeks' standing is so pathognomonic and familiar to the profession, that it is unnecessary to attempt to delineate it further semeiologically. Week after week passes without perceptible amendment: and even then, as is too often the case, the sufferer is left with some distressing ailment, as abscess in different parts, œdema, and, what is worse, sometimes with decided indications of confirmed phthisis. In many cases, where the abdominal complication is present, the character of the stools is peculiar in that there is an absence of fæcal matter, the dejections being watery, of a yellowish colour, occasionally mixed with mucus and blood; and one of the best signs in such cases is the re-appearance of fæcal matter, either in a liquid or solid form, in the stools, which assume a very dark colour, and are extremely offensive.

In the latter end of the year 1851, I had four cases of fever consecutively under my care in this town, in which the stools were of a character to leave no doubt in my mind, in connexion with other symptoms,—such as decided tenderness in the right iliac fossa, tympanitis, diarrhœa, &c.,—of the existence of the abdominal affection; and where, upon the administration of nitrate of silver in injection, after other remedies had failed, the

diarrhœa ceased, the tenderness was removed, and in the course of a period varying from six to twelve hours a solid, feculent stool, of a dark colour and very offensive, was passed, followed by rapid amendment. The immediate alteration in the cases was very remarkable, and the improvement so manifest, that I could not but compare it with the result in many other cases which had been treated in the usual manner. It is, I believe, to M. Trousseau that we are indebted for introducing injections of nitrate of silver in cases of entero-colitis, or dysentery in infants, with great success; and the same remedy is used at the London Dispensary for Diseases of Children.

It is the general belief that in fevers, in the first instance, a noxious principle is introduced from without into the blood, and that the mode by which such introduction is effected is through the respiratory apparatus. The early symptoms, such as rigors alternating with heat, and hurried breathing, would seem to indicate such to be the case, and the subsequent effects upon the nervous system, as the cephalalgia, tinnitus, lassitude, and pains in the limbs, naturally follow, and are explicable upon this supposition. The next point for inquiry is the further effect of the noxious principle upon the system, which I have endeavoured to show in the pathological changes to which the different organs are subjected, and ascertainable by post-mortem inspection, as well as in the alteration of the blood, which assumes a darker colour than ordinary, contains less fibrine (and what remains is imperfectly organized), besides being, in certain cases, remarkably unctuous, and staining the lining membrane of the vessels of a modena hue.

I shall now endeavour to point out in what manner I believe the same principle to be ultimately eliminated from the system. It must be obvious to many that the crisis remarked on certain days, as observed in the breaking out of a copious perspiration, or the marked appearance of lithates in the urine, is not often noticed at present, at all events not to the same extent as was stated to occur at former periods by the older physicians, and, if observed, not to be followed by any material and permanent benefit. A copious perspiration does often indicate no salutary change, but rather an aggravation of the mischief which is undermining the vital powers; and the urine is occasionally loaded with lithates in the very worst cases which terminate fatally. Dr. Latham was of opinion that the doctrine of crisis in fever, in the manner above indicated, was an exploded error, and Chomel, in his Leçons sur la Clinique Médicale, entertains the same views; it therefore becomes a ques-

tion for consideration whether another, but more complicated course, may not be adopted for the expulsion of the fever virus from the system; and if it can be shown that the peculiar lesion of the intestinal glands constitutes a means by which the poisonous material may be eliminated,—which though destructive of life if it exceed certain limitation, is yet conservative in tendency when moderated in intensity,—fresh interest will attach to this affection.

Two of the most rapidly fatal cases which I saw were peculiar in not presenting any abdominal lesion, and it was in these cases that the blood was so remarkably unctuous. In one, a few hours after death, the greater part of the integuments of the scalp, as well as of the neck and chest, was easily peeled off, the heart was extremely soft, and its apex easily invaginated. In the other the cerebral veins were congested, the medullary substance of the brain was of a dusky colour and less firm and elastic than usual, and the lower lobes of both lungs were greatly congested. It appears to me that, under certain circumstances which are involved in obscurity, the poisonous material not being eliminated from the system, either entirely or partially, through the agency of the skin or the intestinal tube, affects the whole of the circulating fluids, and induces local complications in different organs, as the brain, lungs, heart, and spleen, and perhaps in others that we are not aware of.

In Dublin in former years the cerebral complication was to be seen in an aggravated form; the series of cases in reference to it, detailed by Dr. Graves, are most graphically drawn, many of which were brought to a successful issue by his well-known treatment by tartar emetic and opium; success, however, was chequered by failure; and some of the cases, that, judging from the symptoms, one might have thought would be equally amenable to the remedy, disappointed his efforts. A case, remarkably analogous to those detailed by Dr. Graves, where the symptoms during life were referrible to cerebral complication, came under my notice, which was treated most successfully on the plan recommended by him, all the urgent symptoms having been completely removed; though at this most important juncture the patient, a young woman aged 17, was robbed of the chance of recovery by the unconquerable obstinacy of a relative persisting in removing her from the hospital to her own home, about twenty miles distant, when, unfortunately, she sank from exhaustion immediately after her arrival, having been compelled to sit up in the vehicle for some

hours, and no stimulants having been administered on the way. A medical man residing at Huntingdon sent me the following report of the necropsy:—

"Portions of the jejunum and ileum were inflamed; mucous membrane softened, but not ulcerated; lungs and heart appeared perfectly healthy; a little fluid was found in the pleural cavities."

In the above case the tartar emetic plan of treatment appears to me to have induced the redness and softening of the intestinal membrane, by which the elimination of the fever virus was possibly facilitated. In severe cases of fever, therefore, I am disposed to the opinion that the poisonous material seeks a vent from the system, and that the skin failing to meet this requirement, it is attracted to the mucous membrane of the intestines, but, chiefly from some inexplicable cause, to the agminated glands in the ileum, where ulcerative action is readily established, consequent upon their enlargement,—in the same way as the eruption of small-pox, after the peculiar virus has remained latent in the system for three days subsequent to the premonitory symptoms, appears on the skin and usually on the mucous membrane also. Previously to the elimination of the virus in cases of fever, severe local complications may arise, as I stated before, in the brain, lungs, and other organs, and the skin may be covered with maculæ, petechiæ, or the different kinds of eruption, so ably insisted on by Drs. Jenner and Ormerod; and in many cases a compensatory action going on in the skin seems sufficient for the purpose without the aid of the lining membrane of the intestine. Thus Dr. Watson observes, in his Lectures on Continued Fever, that "the inverse relation between the rash and the intestinal ulceration is remarkable, when the *one* is prevalent, the other is rare"[a]. Dr. Stokes has observed that the exhibition of a purgative in the early stage of fever is generally prejudicial,—can this be explained on the principle of its interfering with the natural efforts of the system? It will not for a moment be supposed that the intestinal lesion is not, in my opinion, one of serious gravity; though primarily it appears to me to have a conservative tendency, but frequently becomes of such importance as to require a special treatment. As instances of certain changes of a morbid character, set up conservatively for the purpose of checking another evil, Dr. Geo. Johnson refers to hypertrophy of the left ventricle of the heart independent of valvular disease, in the thickening of the walls of the intertubular capillaries to assist

[a] Practice of Physic, Third Edition, p. 745.

the Malpighian vessels to overcome the obstruction in cases of chronic desquamative nephritis, and hypertrophy of the same organ in connexion with obstructive valvular disease.

My object in using the nitrate of silver injections is to promote a curative process in the ulcerated glands of the intestine,—a lesion which, I shall endeavour to show, may induce secondary symptoms referrible to the brain and lungs, and become a source of fresh contamination of the blood, from the absorption of the fluids discharged from, and fæcal matter adherent to, the ulcers. A remarkable case was presented to my notice where the symptoms appeared at first to be principally referrible to the brain, the most prominent of which were,—a state of stupor combined with delirium and anæsthesia of the right upper extremity, followed by tympanitis and copious diarrhœa. A few hours after the application of a blister to the abdomen, the patient, a robust woman, aged 30, began to recover her consciousness, and on the following day a great improvement, to all appearance, had taken place; this remission of symptoms continued for about twenty-four hours, when the diarrhœa returned, the alvine evacuations actually pouring from her, but a slight abatement took place before death. The haggard expression of countenance so commonly observed in fever left no room for doubt as to the diagnosis; though, previous to her admission, the case had been considered as one of cerebritis, which the post-mortem examination completely confuted, as appears from the following details of the necropsy which I extract from my note-book:—

"*Head.*—On separating the calvarium a small quantity of blood escaped from the divided vessels; there was a little serum in the cavity of the arachnoid, which, with the exception of a very slight opacity in the portion investing the posterior lobes of the cerebrum, was perfectly transparent. On section of the medullary substance, which was of firm consistence, a few red points appeared; about half a drachm of clear serum lay in the anterior cornu of either lateral, and still less in the posterior cornu, and in the third and fourth ventricles; the different bodies forming the floor of the lateral ventricles, with the central parts of the brain, were perfectly healthy; cerebellum intact. A small quantity of clear serum lay in the lower occipital fossæ. *Chest.*—The right lung was congested, and on being incised, gave exit to a large quantity of frothy serum; the left lung had undergone a process of splenization rather than of simple congestion, being friable, of a dark red colour, and pouring out blood on compression; no adhesions existed in either pleural cavity; a small quantity of fluid, however, was found in the

left. Pericardium unadherent, and no fluid effused into its cavity; right chambers of the heart contained a large coagulum of colourless fibrine, and were, with the valves, perfectly healthy. Left ventricle somewhat thickened in its walls, the cavity suffering a proportionate diminution, probably attributable to the rigor mortis, no fluid or coagulum being present; valves, likewise, were perfectly healthy. The external surface of the organ was, to a great extent, coated with a thick layer of fat. *Abdomen.*—The central portion of the ileum presented upon its mucous membrane a number of small black particles resembling dust, which, for the most part, could be scraped off by a scalpel. Two ulcers existed on the mesenteric side of the intestine, of an oval form, surrounded by a thickened portion of mucous membrane, partly adherent to the subjacent tissues, partly separated and undermined; the mucous membrane, with this exception, appeared to be perfectly healthy till within sixteen inches of the cæcum, where was observed an abrupt commencement of the disease, indicated by numerous ulcers, and a gangrenous condition of the membrane itself. A few of the ulcers were observed on the unattached side of the intestine; several were confluent, the base being formed by the muscular tunic, which had undergone a process of thickening; the cæcum was of a dark brown colour, and extensively ulcerated. The ascending colon was of a still darker colour, and thickened, and presented beneath its lining membrane a number of elevations thickly conglomerated. The small points of ulceration in this portion of the intestine were innumerable. The sigmoid flexure gave way as the viscera were being removed, though no unusual force was used. No perforation of the intestine was observed; the mesentery was loaded with adipose matter."

The question for consideration seems, then, to be, whether the cerebral symptoms may not be regarded, in certain cases of fever, as centric, arising from a primary cerebral complication, or as eccentric, dependent upon a lesion of a remote organ, through the secondary contamination of the blood, consequent upon the absorption of deleterious products on the one hand, or constitutional sympathy from the reflection of irritation to the brain on the other. I forbear from quoting several other cases tending to the same conclusion, for fear of unduly prolonging these observations.

In cases of puerperal convulsions the irritation is justly considered, in a large majority of cases, to emanate from the uterus, and in some cases artificial delivery, and thereby the removal of irritation from this organ affords the only means of subduing

the convulsive paroxysm. In children, worms in the intestinal tube frequently give rise to various cerebral symptoms; and chorea and epilepsy occasionally take their rise from irritation in the stomach and bowels. Had paralysis coincided with the temporary anæsthesia, in the case above referred to, there would be greater reason for considering the latter symptom as dependent upon a primary cerebral affection, but this was not the case, and the post-mortem appearances, I think, bear out the opinion, that the intestinal lesion was more concerned, through the medium of the nervous system, in its production. The cessation of diarrhœa and tenderness in the iliac fossæ,—even the complete absence, from first to last, of tenderness in the same region, are not sufficient grounds to justify the conviction that the intestinal lesion is absent. In one case I remember there was no tenderness in the iliac fossæ, several examinations of the abdomen being made in the course of the disease, when the patient (a young man) was perfectly sensible, but the pressure was limited to those parts where the tenderness is generally located. My surprise, however, was excited at finding several large ulcers about the centre of the ileum, though none whatever in the lower third of the intestine, which was merely of a leaden hue. Without care, therefore, in consequence of the abdominal complication not being sought for from the apparent absence of symptoms, it may be completely overlooked, and set down as not existing.

With regard to the secondary contamination of the blood, and the consequent secondary effects upon the pulmonary circulation, Dr. Todd appears inclined to this belief, and I here subjoin an extract from a clinical lecture, published by him, on the subject of fever[a]: "It seems to me that the production of this state, with the enlargement of the mesenteric glands, is due, not so much to imperfect appropriation of food, as to the absorption of a matter from the ulcerated surfaces, which, circulating with the blood, exercises a poisonous and depressing influence,—a matter of the nature of, if not identical with, pus, which is absorbed by the lacteals, and perhaps also by the blood-vessels, but probably chiefly by the former, by which route it quickly reaches the lung, without passing through the liver, where it may contribute to the increase of the bronchial congestion and irritation which so constantly accompany the typhoid state. This view I have often broached at the bedside of patients suffering in this way."

In one of the cases under my care, in which the injections

[a] Medical Times and Gazette, for February, 1852.

of nitrate of silver proved so beneficial, the coincidence of an aggravation of pulmonary mischief, with an increase of the intestinal irritation, was very obvious, and a treatment directed to allay the latter was also successful in the mitigation of the former complication. The abdominal irritation in this case was relit by exposure to cold, imprudence in diet, and an overdose of castor-oil given by mistake;—marked tenderness being evinced in the iliac fossæ, to which it was limited, and followed by pulmonary irritation, which yielded shortly after the diarrhœa and tenderness were removed. According to Mr. Goodsir's report of the fever, as it occurred at Anstruther, the intestinal cases were generally attended with more or less bronchitis; the late Dr. John Reid, who has mentioned this fact, alludes to the efficacy of the acetate of lead in checking excessive bronchial secretion; and I think it an interesting subject for reflection, that this remedy, which is equally useful in the treatment of the intestinal affection so generally recognised, has been found also to exert a beneficial effect on the pulmonary mucous membrane.

It is not at all improbable that a continuance of the pulmonary mischief may, in its turn, react upon the brain by inducing congestion in that organ, from the difficulty experienced in the return of the blood from the venous system. There can be no doubt that the secondary cerebral symptoms resemble the primary, though they may, I am disposed to think, be differentiated; and I am led to this remark with a view to express with others the highest opinion of the efficacy of the tartar emetic and opium plan of treatment of Dr. Graves in certain cerebral complications; at the same time to point out that in other apparently similar cases it altogether failed in producing any remedial effect. The following is an illustration of the failure of this treatment, notwithstanding the analogy to Dr. Graves' cases:—Lewis Bartram, aged 32; ill for a fortnight before admission; headach, heat of scalp, skin hot, respiration hurried, diarrhœa, tongue trembling, but moist: diarrhœa afterwards ceased; skin continued dry and hot; no sleep; delirium, followed by subsultus; pallor of countenance; respiration greatly hurried at intervals; apparent improvement on the day before his death, patient having slept a little, and the tongue being less tremulous; pupils dilated before death; evacuations involuntary. *Post-mortem Appearances.*—Considerable congestion of the cerebral vessels; no diminution or discolouration of the cerebral structure; hepatization of the anterior part of the upper lobe of the left lung; ulceration of small intestines.

I have previously observed that, though the intestinal ulce-

ration is probably conservative in tendency, yet that, abstractedly considered, this lesion ordinarily requires the most careful attention of the practitioner. The frequent failure of the ordinary means for preventing the disease from terminating fatally, and the analogy existing, to a certain degree, between the gastro-enteric affection and entero-colitis, or dysentery in infants, induced me to make trial of the nitrate of silver, in the form of injection, in the proportion of from three-fourths of a grain to two grains of the nitrate, with five minims of the tincture of opium, and a small quantity of thin starch. The cases in which this treatment by the nitrate of silver injections was adopted, occurred in a man and three of his children, between the respective ages of 3 and 11,—two boys and a girl, the latter of whom had been ill three weeks before I saw her; the two boys having been under my care shortly before she was attacked, and, as I was absent from Birmingham at this time, a medical friend was called in, who consented to my making trial of the same remedy in her case. The local action of the nitrate upon the rectum would seem to exert a beneficial influence along the track of the intestinal tube, as demulcents, when taken into the stomach, exercise a soothing effect upon the irritable lining of the air-passages, in catarrh or bronchitis. It will be obvious, should these views be admitted, that tartar emetic and opium on the one hand, and nitrate of silver injections on the other, as administered singly for a very different purpose, should only be used according to the effect sought to be obtained; and discrimination is therefore necessary in the use of either the one or the other plan of treatment. It may be necessary to repeat the injection if the intestinal irritation be reproduced, and other remedies in general use will be adopted to meet the exigencies of individual cases, great care being taken to prevent exposure to cold.

Since this paper was written, I have looked over some notes taken by me at the Meath Hospital, and found one case which was under the care of Dr. Stokes, where there were decided indications of an intestinal lesion (which was treated by poultices to the abdomen, leeches, blisters, followed by mercurial dressing), attended with pain in the head and delirium. My friend, Dr. Heslop, assures me, however, that during his attendance at the same hospital he did not succeed in the numerous post-mortem examinations at which he was present in finding one illustration of ulcerated Peyer's patches, which was looked upon at that time as a pathological rarity. A similar statement has been made by the late Dr. John Reid, who remarks, "that during the whole three years and a half that he

conducted the post-mortem examinations in the Edinburgh Infirmary, in no single case did he observe in any individual who had been visited with fever while residing in Edinburgh, anything resembling the changes described as occurring in the lower part of the ileum in typhoid fever," though it appears that five cases, which proved fatal where this lesion existed, were brought from the neighbourhood of Linlithgow, notwithstanding that in several other fatal cases, from the same district, the lesion was not observed. He then proceeds to observe: "Whether or not the typhoid and typhus fever be identical or different diseases, we shall not venture at present to give an opinion; but if it should turn out that they are specifically the same disease, it would prove an interesting subject of inquiry to endeavour to ascertain why the typhoid form of fever should for several years past have never been found in Edinburgh, while it existed at Linlithgow, Anstruther, and other places in Fifeshire"[a].

I have in the foregoing observations noticed the fact that, in two fatal cases in which I conducted the post-mortem inspection, no intestinal lesion existed, and in another, which had been treated for the cerebral complication by tartar emetic and opium, of which I obtained particulars of the necropsy, the lining membrane of the intestines was inflamed and softened, but not ulcerated, and yet, at the same time these cases came under observation, there were others which ran a very different course, and presented the intestinal lesion in a marked degree. Sometimes the glands of Peyer were enlarged, but not ulcerated; in some the ulceration was slight, in others very considerable. These statements tend to show that though in Edinburgh and Dublin it is not usual to meet with the intestinal lesion, still it does occur from time to time, and that although it was common to observe the intestinal lesion at Bedford, yet it was absent in certain cases about the same period. In the former places the exception was in finding, in the latter, in finding it. I do not pretend to unravel the mystery further than I have attempted in the observations I have already made; but I cannot divest myself of the idea, that the purgative mode of treatment, and exposure of the patient to the influence of cold and damp, materially interfere with the efforts of nature to remove the virus from the system in the manner I have suggested at; and, as stated above, Dr. Stokes seems to confirm my observation to some extent by his disapproval of the use of purgatives in the early stage of the disease.

[a] Clinical, Pathological, and Anatomical Researches, p. 500.

Art. IV.—*Notes on the Urinary Diseases and Morbid Conditions of the Urine in Children.* By Christopher Fleming, A. M., M. D., M. R. I. A., Surgeon to the Richmond Hospital, Examiner on Medicine and Surgery in the Royal College of Surgeons of Ireland, &c.

Diseases of the urinary organs, so common of occurrence in the more advanced periods of life, are occasionally met with in children, modified to an extent to entitle them to separate consideration. Difficulties often attend their investigation, and the symptoms which characterize their presence not unfrequently escape notice, as well from the carelessness of the ordinary attendants, as from the oversight of the practitioner. Yet they are a painful, a serious, and a distressing class of affections, and neglect in diagnosis at their earlier formation may lead to protracted misery, and often to incurable disease,—if life in the interim be not compromised. The principal varieties of these diseases at this period of life to which I wish to direct attention are,—irritable bladder, incontinence of urine, and retention of urine; and, in connexion with them, those morbid derangements in the secretion of this fluid, attention to which is often so valuable an assistant to our practice. These urinary complications are met with as attendants on febrile diseases—whether exanthematous or not—and on their sequelæ; and they are unusual accompaniments of those chronic ailments, both glandular, cutaneous, and gastro-enteric, so very common at this period of life. It is, however, to affections distinct from these that I shall now direct a few observations. I have met with them at all periods of childhood, during lactation and to puberty, and either sex may be attacked by them; although I am of opinion, that they occur more frequently in boys between the ages of eighteen or twenty months, and eight or ten years. At an earlier age than the former, they are very rarely, if ever, recognised, for reasons too obvious to specify, unless some palpable alteration takes place in the character or in the amount of urinary secretion.

*Irritable Bladder.*—Irritable bladder occurs much more frequently in young children than would at first sight appear, and this, where the irritability is not the consequence or effect of inflammation or of organic disease, although occasionally attributable to some abnormal defect. The mother or nurse of the child so affected states that the child is constantly applying the hand to the organs engaged; that it appears to suffer pain during micturition; that the act is frequent; that it is urged, but when

the urine has passed off the child appears relieved; that often, if the urine falls on the floor or clothes, it rapidly becomes muddy and whitish, and it is even stated by some, that it is so at the moment of being passed; that when the child sits down for such purpose, it has an inclination to remain longer than is requisite, and in some cases, that there is a disposition to prolapsus of the rectum, from the forcing and straining attendant, and very frequently a discharge of bloody mucus from the rectum takes place; that these symptoms have continued for some time, notwithstanding the exhibition of medicines to regulate the bowels and produce other ordinary effects; that the child is losing strength and wasting in flesh; that the appetite is most precarious, and that there is a great desire for drink; that the quantity of urine passed is very variable, sometimes deficient; that its quality is equally changeable, at times being pale, at others, deep in colour, and again, clear and often muddy, and with copious sediment.

If accurate inquiry is now instituted, it will be found, that many such children are born of gouty parents, or of persons much subject to dyspepsia, and that they are children whose diet and habits of life are irregular; and in the humble walks of life that they are, in addition, irregularly clad and irregularly cleansed: such are by no means of unfrequent occurrence. The quantitative and the qualitative analysis of the urine satisfactorily explains the symptoms; and attention to the physical condition of this secretion, to its chemical constitution, and to the appearance of the deposits—particularly the deposits of rest—assisted by the microscopic characters of the latter, point out the curative indications which are suitable to each variety of case. It is beyond all manner of doubt, that, as in adult age, many practical hints can be taken from attention to the general constitution of the urine in the surgical diseases of these organs, and that in the child the normal essential constituents of this important fluid may be increased or diminished, and that abnormal ingredients may be superadded. We have here the lithic, the oxalic, and the phosphatic diatheses, and each has its special influence. In fact, with few exceptions,—and the presence of sugar in the urine of children is one worthy of note,—there is no derangement of the urine found in the adult which I have not also found in the child, in its most exaggerated form, both as regards the disproportion between its normal constituents, and the introduction of abnormal substances. I feel perfectly satisfied that attention to these details, as subsidiary means, will be found of value in the diagnosis and treatment of many of the diseases of children,

and especially in those cases of cerebral complication which so repeatedly puzzle the practitioner, and where the quantity of this secretion, on the one hand, is materially diminished, or, on the other, increased.

With a view to the practical study of the morbid condition of the urine, as auxiliary to the diagnosis and treatment of diseases of the urinary organs in the child, I find it difficult to condense my remarks so as to avoid the introduction of any irrelevant matter, and at the same time to escape the charge of an attempt to undervalue those more minute particulars to which, justly, much importance is attached. In my lectures on these subjects, I have been in the habit of directing attention to the colour and smell of the particular specimen under examination, to its chemical re-action, and to its density; and I have always attached very great importance to the *deposit of rest, as to shade and outline*, and to the transparency or otherwise of the supernatant fluid. From an analysis of these several leading features of urine I have derived the greatest advantage, and even, in the absence of any microscopic examination, have been enabled to decide in very many cases, with sufficient certainty for practical purposes, on the peculiar nature of the deposit. Of course in some, particularly the "non-crystalline organic deposit," the assistance of the microscope is often indispensable; but in children they do not constitute the majority of the cases met with. As attendant on the "irritable bladder," I would say that, according to the classification of urinary deposits by Golding Bird, those of uric acid and the urate of ammonia and of oxalate of lime are particularly frequent in occurrence; and that, next in order of frequency are conjointly or separately with these "the non-crystalline organized products," such as blood, pus, occasionally mucus, but very often indeed vibriones. It would be too great an occupation of space and of time to enumerate the many cases I have witnessed, as illustrative of these statements; they are of almost daily occurrence. I do not deny that phosphatic deposits are to be met with, but these deposits do not occur, under ordinary circumstances, as a substantive deposit in the urine of children. The prisms of the neutral triple phosphate are to be seen conjointly with the crystalline deposits above specified, just as in adults, but it is very rare indeed to meet with them as solitary deposits, although so frequent in advanced life; and it is equally rare to find them combined with that physical and chemical condition of urine almost necessarily present under such circumstances. Indeed I find it difficult to bring to my recollection—unless under the most aggravated form of vesical and renal disease,

complicated with phosphatic calculus in the child—that excessive secretion from the mucous membrane of the bladder which takes so very prominent a part in the formation of such deposit in advanced life. Amongst the numerous cases of urinary disease I have witnessed in the child, such is excessively rare, and it is equally rare as a symptom of calculus in the child. There was in one case a source of deception, which was by the merest chance unfolded to me, and which, perhaps, may be noted as confirmatory of Sir Benjamin Brodie's opinion as to the the special source of those phosphatic salts in the urine.

In May, 1852, a boy, aged three years, was brought to my study by his mother, in great alarm from the suffering the child had endured for some weeks in passing urine. There was frequency and urgency, and so much forcing and straining as to produce distressing prolapsus ani. The urine was largely loaded with lithates, and contained a remarkably tenacious mucous deposit, deeply coloured with blood, and adherent to the glass. I found in it numerous blood discs and large crystals of the triple phosphate. Symptoms not improving, I felt justified in sounding the child, which I did with a silver catheter, and whilst the urine was escaping, a severe paroxysm, resembling a fit of the stone, occurred, during which a considerable quantity of gelatinous mucus escaped from the rectum. I collected the urine drawn off through the catheter in one test-glass, and the discharge from the rectum in a second. The urine was acid, the latter alkaline; the former was loaded with lithates interspersed with some crystals of oxalate lime, the latter, in addition to mucus, blood globules, and epithelial scales, was studded with large, distinct, triple phosphatic prisms. I merely mention these details incidentally, as interesting and not unimportant phenomena, and particularly in connexion with the statement of Sir Benjamin Brodie already alluded to. They were to me then novel, and I took the opportunity of showing the microscopic appearances and the specimens to my colleague, Dr. Hutton. I have since been enabled to confirm them.

I have said that the lithic acid and lithate of ammonia deposits, and also that of the oxalate of lime, are the most frequently met with in children, and they will be found to be productive of most decidedly distressing urinary symptoms. I have often found these deposits present conjointly; very often the oxalate of lime and the urate of ammonia, the latter cloaking the former, unless carefully looked for. I have found the red sand, as the lithic acid is sometimes termed, in the child, but it is

far more frequent to find the colourless, or nearly colourless, crystals of lithic acid, and all are met with of every variety of shape and form, and they are to be seen in the children of the poor as well as of the rich; and really it does not appear that diet very materially influences their presence or their character. I have a boy, aged about 7, now in hospital, with suspected calculus in the bladder, and in him numerous crystals of pale lithic acid exist in combination with oxalate of lime; whilst in another ward in the same hospital, there is a boy, somewhat about the same age, a patient of Dr. Hutton, in whom the red sand is visible to the naked eye in the test-glass, floating through the urine, and under the microscope the deep orange crystals are to be seen distinct, and in large aggregated masses. It is in this class of deposits, and in that of the oxalate of lime, that the surgeon requires to be more circumspect, as the physical and chemical characters of the urine are often not remarkable. The colour is in such cases often pale; the density very low, so low as 1007 to 1010; the deposit a mere tomentous, semitransparent cloud, but one which will not escape detection by the practised eye. The suffering experienced in some cases of this nature is really very great; and if the child happens to have a long narrow prepuce, or an abnormal opening in the urethra, he may be put to unnecessary torture from inattention to the morbid state of the urine. I have known such cases:—one, a fine child, the only son of a fond father, who lived freely, and thought the child could not do better; the other, a boy aged three years, with hypospadias, from which the child had not previously experienced any visible inconvenience. In each the usual traces of symptoms of irritable bladder existed; in each, the ordinary clear condition of urine diverted attention from the examination of its actual state; and in each, its normal restoration caused the subsidence of all annoyance. I do not dwell on the lithate of ammonia deposit; its characteristic appearance is too obvious to require any comment. I shall merely add in conclusion, as regards it and the other crystalline deposits noted, that when from their continued presence they produce local or general irritation, they demand the watchful care of the practitioner to put rigidly in force those dietetic and therapeutic means which are laid down in systematic treatises on the subject; and if the symptoms do not yield to such treatment, he should search for some local cause either in the bladder or in some portion of the organs implicated; and he should also bear in mind, that such character of urine is the most likely to lead to the formation of stone in the bladder, as proved by

its composition in the child, and by the fact of its being the most common attendant on its presence when found there; and that hence two practical lessons should not be lost sight of, namely, to alter, as quickly as can be effected, this morbid condition of urine, and to suspect the presence of calculus, should it be obstinate.

The cases in which we meet with blood, mucus, pus, or epithelium in the urine of children, apart from general disease, or as isolated or substantive urinary affections, are comparatively rare. In the ordinary diseases of children, acute and chronic, urinary deposits of this class are to be constantly found, and a knowledge of their presence is most valuable. The surgeon should, however, be prepared for the fact, that some cases will present themselves, and these by no means few, where no such complication exists. I have known boys pass blood, and in no small quantity, from the bladder, and yet they were apparently enjoying excellent bodily health, and, in the intervals of the attacks of hematuria, free from any appreciable urinary irritation. The very identical statement may be made as regards pus. The history of a few cases will illustrate this.

A boy, aged about nine years, fell from a height, and, amongst other symptoms, it was observed that his urine was bloody. It was supposed to be the result of the injury, and yet the boy complained of no local uneasiness, neither did he manifest any local lesion to account for such complication. I doubted much the statement made, when the child mentioned that on two or three former occasions, within the past year, previous to the accident, he had observed his urine similar in colour, without being able to attribute it to any particular cause, and that the urine spontaneously resumed its natural appearance. I watched the progress of the case, and made the boy pass urine in my presence. It was as dark as coffee; and, on examination, was found to be loaded with blood globules. The result proved the accuracy of the boy's statement.

I have notes of another case where intermittent attacks of hematuria (the blood being of a bright arterial hue) occurred in a boy aged between six and seven years possessing all the semblance of health, and where the hematuria was provoked by the most trifling causes, was unaccompanied by pain or uneasiness of much moment, and ultimately almost spontaneously subsided.

Although it would appear from the report of these cases that blood may be present in the urine of children, and in large quantity, and yet be productive of not much local or general

distress, nay, more, not leading to any serious results as far as can be ascertained, we are yet to keep in mind that bloody urine may be pathognomonic of renal disease, and that disease sometimes malignant. However, a train of symptoms will manifest themselves in the progress of such cases, which must necessarily lead to suspicion. I have examined the urine of a child, containing a large amount of blood, the child dying under twelve months old of encephaloid disease of the kidney, and during life the urine being almost constantly more or less tinged with blood. The morbid specimen in this case was exhibited by Professor Montgomery, at one of the meetings of the Dublin Pathological Society. Blood *singly*, however, is a rare addition to the urine of children unless the result of injury, or unless traceable to calculus in its passage along some portion of the urinary tract: nevertheless it is a very rare attendant on stone in the bladder in the child.

With regard to pus, it is far more frequently met with in the urinary diseases of children, and it is surprising how tolerant both the general health and the bladder are of its presence. Unless very particular inquiry is made by the surgeon into the history of the case, such a complication will wholly escape detection. Cases of this kind occur in both sexes. In girls, as in grown up females, very considerable circumspection is requisite as to accuracy of diagnosis. Indeed I should have made a similar remark as to hematuria when it occurs in girls, but this caution is so palpable that it merely requires a passing notice.

It is otherwise, however, with respect to purulent urine. To be accurate, when the affection is persistent and obstinate, local inspection must be made in the female child, as morbid secretions from the vulva and vagina are by no means of unfrequent occurrence in such children if badly cared, and the urine, "in transitu," will be loaded with pus globules, with mucus, and even with an amount of phosphates sufficient to render it neutral or alkaline, and this quite apart from urinary diseases, although attended with much urinary irritation.

The following case is a good illustration. A girl, aged about ten years, was brought to the Netterville Institution, the mother stating that she suffered from pain and frequency in micturition, and that her urine was offensive in smell and whitish in colour; that her general health was tolerably good, but that her present ailment was so distressing as to prevent her from attending school; that her bowels were regular and her appetite fair. No other particulars were noted by the mother, though she appeared to be an intelligent woman. I directed

some simple aperient, and desired that some of the urine passed on the following morning should be brought to me. I took the following notes of it:—Colour, muddy and whitish; odour, offensive and sour; re-action, almost alkaline; density, 1015 to 1018; deposit of rest, opaque, greenish-white stratum about one-quarter of an inch in depth at bottom of glass, and with defined upper surface; supernatant fluid clear and of a light straw colour.

The density of the specimen, and the colour of the supernatant fluid, led me to suspect that the origin of the pus was not from the urinary tract. Under the microscope, pus globules were distinctly evident; there were also some mucous globules, and a large amount of epithelial scales; amongst these were interspersed granular masses of phosphate of lime, and some few crystals of triple phosphate prisms.

On the next visit I made more particular inquiries as to the presence of any discharge from the vagina, and, receiving no satisfactory answer, I examined specially, and found the mucous membrane of the vulva and the whole pudendum swollen and villous, and absolutely soddened with fetid sero-purulent discharge. A drop of this under the microscope showed myriads of pus globules, epithelial scales, and granular masses of phosphate of lime. It restored the blue colour to reddened litmus. Now, drawing off the urine through a catheter, it was found acid, and free from more than a few pus globules, but loaded with lithates[a]. Attention was paid to the local affection; astringent lotions were directed, and cleanliness enjoined, and in a short time the vesical symptoms disappeared.

Here, then, is a source of pus in the urine which should command attention. It must be inquired into. From what cause I know not, but details will not be voluntarily communicated by child or parent. Irritability of the bladder in girls may arise from another source than that of general engagement of the vaginal mucous membrane in the secretion of pus. The quantity of pus may be more limited, but yet pus globules will be distinctly visible. I allude to an ulcerated fissure of the vagina, resembling a similar affection engaging the rectum in the adult. The agony attending this can hardly be described or exaggerated: the principal suffering is referred to the bladder, and the pain during and after micturition is most acute. It is also quite intelligible that the whole mucous membrane of the vagina, in consequence of this partial ulceration,

[a] In adult life, where leucorrhœa in females is attended with vesical irritation, I have derived much assistance in diagnosis from a similar proceeding.



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may become secondarily engaged, and that the purulent secretion will be proportionably profuse.

Here, again, the urine gets its morbid properties from the disease notified, and the cure of it insures the healthy function and secretion of the bladder. As far as my experience is concerned, however, cases of purulent urine in children occur more frequently in boys than in girls. They are, in very many instances, strangely tolerant cases, and strangely obstinate; some of them have a resemblance to those cases of hematuria I have noticed, as being somewhat intermittent in their character, and in not being productive of any considerable local or general irritation. I may instance the following case:—

A boy, aged about twelve years, rather delicate in appearance, and somewhat strumous in aspect, applied to me at the Netterville Institution, complaining of irritability of the bladder, and describing the urine he passed as having the colour of milk diluted with water, or muddy whey. He stated that such had been the case, with irregular intervals of a freedom from pain and clearness of urine, for more than twelve months, but that he was, notwithstanding, obliged to leave school in consequence of the irritability of his bladder: that he could only attribute the attack to damp and cold. I tested and examined his urine. It was loaded with pus globules to an amount so great, that the deposit of rest occupied nearly half an inch of one of my ordinary test glasses,—namely, between four and five inches in height, and about one inch in diameter. Yet the boy did not appear to suffer materially in general health. I procured his admission into hospital, and examined his bladder. I could not detect any local cause to account for his complaint. He left the hospital benefited by the exhibition of uva ursi, alternated with buchu and the mineral acids, but he is not cured. The pus I can always detect in the urine, and it is liable to recur with intensity at irregular periods from different causes, but particularly damp and cold. He appears to attach little importance to its presence, the irritability of the bladder being slight, and his general health good. Through the kindness of my colleague, Mr. Adams, I have at present a case under my care, in the Richmond Hospital, in which this purulent condition of the urine exists. The subject is a boy aged seven years; and, when his prolonged sufferings are borne in recollection, it is absolutely astonishing to witness the almost perfect state of his bodily health. His symptoms are very severe, and contrast remarkably with those, comparatively mild, in a boy in an adjoining bed with calculus in the bladder, under the care of Dr. Hutton. The attendant irritability of the blad-

der is extreme, so much so, as to be almost incessant. The urgency to pass water is great; the agony excruciating towards the end of micturition, and the act only tolerant in the sitting posture. The pain he describes as a cutting kind of pain; he refers it to the bladder and to the glans penis, and tries to relieve himself by pulling and pinching the prepuce and end of the penis. The child moreover states, that there is often a sudden interruption to the stream of urine, and that by changing his position it recovers itself, and then dribbles off. In observing the passing of the urine, its muddiness throughout the whole act of micturition is obvious, and the quantity discharged is very variable, but always small. There is no incontinence; there is no prolapsus. The penis is somewhat largely developed for the age of the boy. He complains of no pain or uneasiness in the lumbar region. I may add, he has a symptom which, in cases of this description, I have not unfrequently observed, namely, great tenderness on pressure and on percussion in the supra-pubic region.

The disease is stated as being of more than twelve months' duration; and the boy, who is very intelligent for his age, is disposed to attribute the supervention of the attack to his being obliged to keep his bladder painfully distended during school-hours; that when he had the opportunity of emptying it, he required to force and strain considerably, and that often he could not for a time discharge any urine; that gradually the present train of symptoms set in, and became more intense; and that his urine has been often mixed with blood, and latterly has become of a whitish colour. Such is the history of the case of this poor child, who has been admitted into hospital whilst these pages are passing through the press. I have intentionally given them in detail, as being admirably illustrative of this peculiar form of irritability of the bladder. The character of the urine I have carefully noted, and it is that which will be found most usually present in such cases. It was examined within a few hours after it was discharged, and was as follows:—Colour, muddy and whitish; re-action, acid; density, 1010 to 1012; deposit of rest, an opaque, greenish-white stratum, abruptly defined at its upper surface, and about one-fourth of an inch in depth at the bottom of test glass. Supernatant fluid almost aqueous, nearly transparent, and, within a limited period, uniformly miscible with deposit. Under the microscope, numerous pus globules visible. No fibrinous or tubular casts; no epithelial *debris;* no phosphatic deposit.

As a precautionary measure, the bladder was examined by Mr. Adams, with a view to the presence of calculus, but none

was detected; and I stated beforehand that such would most probably be the case, from the consideration of the peculiar morbid condition of the urine, with the existing symptoms, although the rational signs of stone appeared very prominent.

I do not for one moment attempt to assert, that stone in the bladder, when attacking children, may not be accompanied by a purulent condition of the urine; but I am certain that it will occur very rarely, if ever, where the character of urine, noted in the case just detailed, is found to be present. Purulent urine did exist in the case I am about to allude to, but that purulent character was derived from a source external to the urinary apparatus, or supposed to be so.

A boy, aged five years, was admitted into the Richmond Hospital, under the care of Dr. Hutton, with symptoms of vesical calculus, and with a constitution so shattered by protracted disease that he only survived his admission a few days. In his bladder there was a rough calculus of oxalate of lime, about the size of a nutmeg; and in the left ureter, about its middle, an oval, ulcerated opening, communicating with an extra-renal tumour on the same side, full of fetid and purulent urine. The particulars of this case are given by Dr. Hutton in the Proceedings of the Pathological Society, and will be found in the Reports printed in the sixth volume of the present series of this Journal. From the highly inflamed state of the lining membrane of the bladder, as delineated in a drawing illustrative of the pathological appearances, it is quite evident that it did not exercise any prominent part in the secretion of the pus; and I have no doubt that the urine contained, in addition to pus, other characteristic organic deposits, both in a crystalline and in a non-crystalline form, which would have led to an opinion as to the nature of the calculus, and especially when it was not coated with phosphates.

Such examples of blood and pus in the urine of children are rare, compared with their frequent occurrence in adult age and advanced life. They are yet worthy of note, as being, in many instances, so strangely tolerant and intermitting, demanding careful inquiry and investigation as to their origin and cause.

I have often thought that purulent urine was occasionally vicarious in the child as in man, and especially in those pyogenic conditions of the system so common in the earlier periods of life, as evinced by glandular suppuration and chronic abscess. From the patients to be dealt with, it is not easy to carry out investigations on this subject accurately, but I have reason to think I have seen cases of the kind. I do not wish, however,

to speak too confidently on the matter, as the statements of attendants cannot be depended upon, unless the specimens of urine are procured with great care,—and this is as requisite in private as in hospital practice,—and unless they are minutely examined under the microscope. Copious deposits of urates, in the cases I allude to, are by no means unusual, and general statements made respecting the external characters of the secretion would be deceptive. This investigation may be more interesting in a physiological than in a practical point of view, but there are cases in which our prognosis must be very materially influenced by it; at all events they occur in advanced life.

Here a question of vast practical importance suggests itself as regards the source from which the urine acquires its purulent character; and the same question may be asked as regards blood. Too frequently here, the symptoms which the French term "commemorative symptoms," are so defective in the cases of children, that it is very difficult to solve such questions. A great deal must, therefore, depend on the accuracy of observation of symptoms as they present themselves.

In hematuria there are palpable cases of injury where a confident opinion can be given; but diseases are our present object. In the strictly surgical application of the term, renal hemorrhage is a rare disease in children. One case has been noted where malignant disease of the kidney originated it. Again, the symptoms of nephritis and nephritic calculus are as obscure and as equivocal as they are rare in children. Pyelitis is equally rare; so that the subject is surrounded with very considerable difficulty. I have experienced great assistance in diagnosis from attention to *the condition of the urine as it escapes in the act of micturition,* and afterwards to the prominent features in its examination notified. *The uniform miscibility of blood or of pus with urine, whilst passing from the urethra, is no invaluable guide in estimating their source;* the peculiar colour or tinge of the former *then*, and when *the deposit of rest* forms, is equally so; and as regards pus, it is beyond all manner of doubt that the surgeon will acquire much information by attention to similar details, though apparently trifling. He will see that in nearly all cases of purulent urine in children, the change in the fluid is obvious throughout the whole act of micturition; and this alone, independent of the examination of its morbid condition, will lead to more than a suspicion as to the source and extent of disease. In the case of the boy at present under my care in the Richmond Hospital, I apprehend there is a complication of renal disease, although no complaint

is made of any lumbar pain or uneasiness, and no particular fulness or tenderness exists on examination. Pathology teaches us how deceptive symptoms are as to the actual existence or site of organic lesion of the urinary apparatus even in the adult. In a case of irritability of the bladder in the adult, I have found the kidneys extensively diseased and the bladder free from disease, although the latter was nominally the seat of all the suffering of the subject of it. The same occurs in the child. Irritable bladder in the child, accompanied by purulent urine, has in some instances been found to be attributable to tuberculosis of the kidney, and not a trace of disease in the bladder existed.

In other instances, again, this same form of disease, as now termed, has had its seat in the vesical mucous membrane and in the submucous tissue, forming large prominent tumours, of varied consistence, projecting into the bladder, which was proportionably contracted, with its mucous membrane congested and villous in some cases, in others frayed and ulcerated to a greater or less extent and depth, and presenting an appearance very different indeed from that trabeculated or columnar condition accompanying ordinary forms of disease in the adult. This condition of the bladder is not isolated; the kidneys partake of the same character of disease, and ultimately the sufferer must fall a victim to it singly, or conjointly with more general tubercular development[a].

This is, however, the extreme case, but others are to be met in which disease is limited to some one portion of the bladder, and where it is reasonable to suppose the affection is curable. In our prognosis we will be materially assisted by attention to those conditions of the urine noted in the cases detailed. It must be most unfavourable when the combination of pus, of blood, and of mucus co-exists, or even of blood and mucus, and especially if the density of the urine is low, and continues so; if its colour be aqueous; the smell fetid; the re-action alkaline; and the deposit phosphatic; and if the morbid conditions of the urine are attended with lumbar or nephritic pains, and general symptoms of urinary hectic. These symptoms are not peculiar to irritable bladder attended with purulent urine and referrible to the form of disease described. Similar symptoms will present themselves in cases of calculus, where the phosphatic diathesis predominates, and hence great caution is required in the diag-

[a] There is a preparation in the Museum of the Queen's College, Belfast, which shows these morbid appearances; and I believe there is one also in the College of Surgeons here. The disease resembles much a similar affection in the rectum of young children, and is decidedly strumous in its nature.

nosis, lest the operating surgeon should confound them, and thus materially compromise his character. I could bring forward cases where the operation of lithotomy was declined, from the conviction that the rational symptoms of stone, though strongly marked, were all attributable to general urinary disease, in the absence of calculus, as proved by subsequent post-mortem examination; and others, where persistence in opposite views led to most distressing and unsatisfactory results, from non-detection of stone after the operation of lithotomy; and equal ill success as regarded it on the fatal termination of the case.

Within the last two years two cases have occurred to my knowledge, in which the operation of lithotomy was declined, from the impression that this special form of disease existed to the exclusion of stone in the bladder. In one of the cases the boy was aged ten years. The rational signs of calculus were particularly well marked, and, amongst them, the penis was most remarkably enlarged. The paroxysms exactly resembled those attendant on a fit of the stone. The urine was muddy whilst being passed, and bloody towards the end of micturition. Its density was 1005 to 1008; its re-action feebly acid; its deposit, characteristic of blood, pus, and mucus: the latter so considerable as to cause firm adhesion to the test glass. The pus globules were in abundance, also the blood. The diagnosis given was disease of the lining membrane of the bladder, and renal complication. The boy died of urinary hectic. The bladder exhibited marks of extensive disease, implicating the mucous membrane, which was extremely ulcerated in different portions. The kidney contained strumous abscesses in isolated patches; not a trace of stone. As regards the second case, I believe the child is yet alive, but the symptoms of stone are so characteristic that is with some difficulty the disposition in the surgeon to operate is controlled. In neither of the cases were the physical signs of stone manifest.

In concluding these remarks on irritability of the bladder, as connected with morbid urine, I may add, that on very many occasions I have been enabled to trace the presence of vibriones in the secretion, and that I have detected these animalcules most frequently in deposits demonstrative of the lithic acid diathesis. They are detected with the greatest ease; very little care is requisite to place them under the field of the microscope, and the only caution required is to bear in mind that they are cloaked in the muddy deposit of the urates. I have so repeatedly found them immediately after the urine has been passed, that I cannot but entertain the opinion that they come

ready formed from the bladder in not a few instances. I have seen them in purulent urine, but they are far more common in the lithic acid, or in the oxalate of lime diathesis, and particularly in the children of the poor.

It is unnecessary to state that irritability of the bladder is no uncommon attendant on the ordinary worms of children; and I may add, that the remedy I find very beneficial in the case of vibriones I have found equally so in these parasites; I allude to creasote. I have been in the habit of giving it for the last few years, in cases of the kind, in combination with the common aperients of children, and with very great benefit; and in the irritable bladder of children I constantly direct it, with or without calomel, according to circumstances.

In dispensary practice these urinary affections are not very manageable; indeed it is not to be wondered at that our treatment is not very successful as regards them. The state of the skin, as to warmth and cleanliness, must be attended to, and also diet; and I need not add, that the subjects are badly clad and badly fed, and they are little disposed to take medicine, or persist in its use; nay more, that their parents are often perfectly listless as regards the directions given them, or even the presence of their ailment. The case of the little boy, to which I have so often alluded, is a proof of this. He has laboured under his urinary symptoms for about twelve months, and it was only within the last week that the mother applied for medical advice.

I shall not enter into the details of the therapeutics suited for these cases. I have found buchu and uva ursi, with lime or magnesia water, or with the nitric or hydrochloric acids, in suitable doses, of great benefit; and I have combined them with hyoscyamus. In the chronic cystitic affection,—for I believe it often to be of that nature,—cod-liver oil, alternated with those preparations of iron fitted for children, do much good; and mild counter-irritation in the supra-pubic and lumbar regions with the tincture of iodine, will materially assist their action. Sea air, and tepid or cold bathing, as may be suited to each patient, are most valuable in many cases.

In addition to these general and local means, it is indispensable to attend to the state of the bladder. Its capability of discharging its contents must be tested occasionally, and such operation must be performed very gently, and with a gum-elastic catheter. I am under the impression that in all painful urinary affections children do not empty their bladders fully, and the very position which they select for the purpose shows that they circumscribe as much as possible the action of the

abdominal muscles, so as to measure with more precision the amount of contraction of bladder suited to alleviate their sufferings. In the posture they select they absolutely prevent much pressure of these muscles on the parietes of their bladders, in them so liable from its position to be so affected thereby; and, therefore, in calculus, and in the disease under consideration, there is not a diminution of capacity to the extent to be expected from the repeated action of the bladder. In such cases I have often tested the bladder as to its contents after the child had made every effort to empty it, and in it I have always detected from four to six ounces of urine: even without the introduction of a catheter I have found that percussion in the suprapubic region will enable the surgeon to estimate the amount of distention. I am particular in alluding to this practical fact, as a knowledge of it is important in treatment. It is being carried into effect in the case so often alluded to, where, notwithstanding the great irritability of the bladder, the catheter must be had recourse to, to empty it.

In other instances of irritable bladder, notwithstanding all the curative precautions adopted, and attention to the character of the secreted fluid, the symptoms of the disease advance, the bladder becomes seriously engaged, and even retention of urine may supervene; and all this from a local cause which the inspection of the surgeon could at once detect, and which, strange to say, often escapes the notice of the daily attendants on the child. I allude to some abnormal defect in the genital organs in the immediate vicinity of the urethra, in the labia, or nymphæ, or prepuce of the clitoris in the girl; in the prepuce or orifice of the urethra in the boy. That this is no exaggerated statement the following cases will testify, and, doubtless, similar have occurred, or will be seen by other surgeons if they are on the watch. I shall select cases occurring in both sexes. The first is one of congenital adhesion of the labia pudendi in a child aged two years and some months, and accompanied by a peculiar state of the orifice of the urethra. This child was in progress of recovery from anasarca after scarlatina, and was observed by her mother, some days before my visit, to have repeated, painful, and urgent calls to pass water, which was discharged with considerable and forcing efforts, and the paroxysms were attended with violent screeching. She was also observed repeatedly to apply her hand to the pudenda. The urine gradually assumed a deeply-coloured brownish and sooty hue, and deposited, on settling, that cloudy deposit so characteristic of the albuminous nephritis attendant on the exanthemata. The quantity of urine, which, at the commencement of

the symptoms of anasarca, had materially diminished, and, as is often the case, was accompanied by irritability of the bladder for the last fortnight, was under treatment remarkably increased; but until the within mentioned period there had not been any uneasiness in micturition.

The night previous to my visit, irritability of the bladder had supervened, and was excessive; the cries and suffering of the child were most acute, and considerable hematuria was present. I had been frequently in attendance on the child for the ordinary ailments of children during dentition, and had not on any occasion observed any indication of urinary distress. The almost sudden supervention of the above symptoms, their decidedly local character, and their extreme severity, led me to suspect the presence of calculus in the bladder or in the urethra, with the view to the ascertainment of which I proceeded, when, to my surprise, I found the labia adherent from before backwards, with the exception of two openings through which little more than the point of a probe could be introduced; one of them existed at the forepart, behind the clitoris, and the other posteriorly, in the site of the fourchette. The intermediate junction was very consistent in front, without the presence of any raphè, and, as it approached the perineum, resolved itself into a membranous line almost transparent.

During my examination a vesical paroxysm came on, when I had an opportunity of witnessing the mode of the passage of the urine, almost *guttatim* through the openings alluded to, with a marked protrusion of the intermediate band. The difficulty of the case was now solved; the band was divided; but the orifice of the urethra could not be seen, and every effort to get assistance from the child failed; she would not pass water, and the hemorrhage obscuring the opening of the vagina, further interference was then dispensed with.

The symptoms of irritable bladder subsided, when, on the eighth day, a disposition to their return manifested themselves. Now, on more minute examination, a small cribriform veil of mucous membrane was detected, cloaking the orifice of the urethra, and continued over it from the prepuce of the clitoris. This was divided, and all symptoms of irritation rapidly subsided.

There are many interesting features in this case, but it is sufficiently demonstrative of the object in view at present. The sufferings of the child would not have been alleviated by other means than by those adopted, and, no doubt, to say the least, the irritability of the bladder would have been persistent, and have necessarily led to further mischief. I mean

not to assert that these congenital adhesions of the labia always produce the above symptoms. I know the contrary to be the fact, both here and when they are accidentally adventitious, and particularly if the orifice of the urethra is free; but the recollection of the possible involving of the latter, in either lesion, will put the surgeon on his guard where symptoms such as those I have described are persistent, and do not yield to ordinary treatment. I have divided these membranous septa traversing the nymphæ, and the amount of vesical irritation was hardly appreciable. However, when we reflect on the cases which present themselves, and those not very few, in adult life, of irritable bladder, ostensibly traceable to warty or other growths at or in the vicinity of the urethra and orifice of the vagina, it may not, perhaps, lessen the importance attached to this subject, as demanding early interference; and this especially when from any cause the quantity or the quality of the urine should undergo any morbid change, and hence be productive of more or less irritation.

I must now pass on to the case of boys. Where local circumstances exist, to which are distinctly referrible the symptoms I have above enumerated as attendant on irritable bladder, the value of the remark of Sir Benjamin Brodie is particularly striking, namely, "to combine with the observation of symptoms the study of morbid anatomy" (we may here substitute "abnormal anatomy"), otherwise we are apt to confound with one another affections which are essentially different, under the general appellation of irritable bladder, and torture our patient with remedies worse than useless. I put completely out of the question, for the present, any derangement in the healthy character of the urinary secretion. I will assume that the surgeon is acquainted with it, and that he has adopted the requisite remedial agents; but he is yet unsuccessful; the irritability continues, and if any change has taken place, all symptoms are aggravated, and this although the urine may be restored to its normal state. Whence the cause of this? Let the surgeon examine the penis, and he will frequently get a clue; let him place the child before him, and make him pass water, and let him cast his eye on the appearance of the penis, both before and during the passage of the urine. In not a few of such cases he will find that the orifice of the prepuce is at a considerable distance from the extreme end of the glans; that that orifice is so small as to admit with difficulty the end of an ordinary probe, and that when the child makes water, the urine does not escape in a uniform stream; that it is scattered, and that during its transit the prepuce is distended into a pouch by

the accumulation of the urine within it, the glans being at a considerable distance behind. Cases of this kind are really so frequent, that I do not deem it necessary to specify them; and I venture to state, that if attention is directed to the fact, its practical importance will be admitted. Such a state of organ will not necessarily entail symptoms of irritable bladder. The contrary, as in the case of the female child already noted, may be the fact, but I do affirm, that where deranged action or function of the urinary system arises, no matter from what cause, that the presence of it will be found to be often attributable to the lesion. I mentioned that no *permanent* cure will or can be affected, if it is overlooked; nay more, on a careful revision of the cases which came under my observation, I am disposed to go farther, and to state, that on the supervention of disease, a more aggravated character is traceable to it. Who will deny that cystitis and its uncertain consequences may not arise from it; that stricture may not arise from it; that retention of urine, and that calculus, may not be superinduced by it? Cases illustrative of this will appear in the sequel.

As regards the treatment of such cases, the division of the prepuce may be ultimately required; but from the results of such operation in children, trifling as it is, I am disposed to prefer mechanical dilatation of the orifice of the prepuce by the occasional insertion of a piece of prepared sponge within it for an hour or so, or by the withdrawal of the prepuce on the glans during micturition. Much success has attended this expedient.

One of the most distressing cases I have witnessed of irritable bladder, arising from these abnormal defects, was where an excoriation took place at the orifice of the urethra, in that deformity termed hypospadias. The mother was actually ignorant of the condition of the organ present; ulceration had supervened, and the subsequent cicatrization had so completely closed the orifice that it would admit only the finest probe. The severe distress present was removed by a slight division of the delicate membrane surrounding the orifice, and the securing of its permanent patency by a piece of bougie.

This portion of my subject has extended so far, that I must for the present postpone the consideration of Incontinence and Retention of Urine in the Child.

Art. V.—*On Difficulties in Diagnosis, with illustrative Cases.* By A. G. Malcolm, M. D., Physician to the General Hospital, Belfast[a].

For the reader of my former paper on the above subject published in this Journal[b], it will be unnecessary to refer again to the reasons which induced me to call the attention of the profession to the importance of recording cases of diagnostic interest. Suffice it to say, that I do so now, with the same views and certainly a stronger conviction of their ultimate value,—more especially to the junior practitioner. As the accurate chart of the navigator enables him to reach the most distant shore, and to pass through the most difficult seas with unerring exactitude, so may the contemplation of an extended series of fully recorded examples of difficult cases in medicine, with their faithful interpretation, form the best foundation to conduct to the safest and most satisfactory practice.

I do, indeed, believe that the right interpretation of the living phenomena of disease is, as a systematic subject of medical inquiry, a field which requires a more searching exploration than has been already made. The really valuable information necessary to assist us in cases of obscurity may exist, buried amongst the vast accumulations of recorded experience, which, however, from being on the moment inaccessible, must be considered for the most part nugatory. It frequently happens that an apparently insignificant symptom for instance, when overlooked or faultily interpreted, becomes the means of serious practical injury. More frequently, an unusual sequence of phenomena, or a marked preponderance of a deranged function, occurring in the course of a case, may so alter original, and, it may be, correct impressions, that a confused or uncertain treatment becomes the practical result. The only mode of arresting this prominent and much to be regretted evil, must, it strikes me, be the more extended diffusion of the practical hints to which I have already referred,—hints, the knowledge of which is, unfortunately, it is to be feared, confined to men of erudition and of protracted and enlarged experience. I can scarcely conceive any greater boon to the novice about to embark on the troubled sea of professional life: for, however profound may be his scholastic acquirements, or however varied his merely systematic knowledge, he will soon feel, and keenly too, the want of that practical experience which time

[a] Read before the Belfast Medical Society. [b] Vol. xii. p. 30.

alone is supposed to be capable of bestowing. Doubtless the progressive improvements in physical diagnosis, which the present age seems destined to mature, have placed in our hands a large compensating power more than sufficient to cope with all former observation; still they must ever have a limited range in actual practice, and difficulties must ever meet the most accomplished diagnostician who relies chiefly on his powers of physical examination. Compared with our ancestors, though we may boast of our scientific progress, it is more than questionable whether we yet equal them in the study of symptomatological inquiry, or in the natural history of disease. Their writings continue as models of faithful observation, and as such can never be superseded.

The illustrations of difficulties in diagnosis, and their effects in remedial management, which I shall now adduce, will, I believe, fully bear out the tenor of these observations. They will exemplify the practical facts,—of the inefficiency of mere physical examination to elicit early the nature of certain cases, the discordance of symptoms calculated to suggest different forms of disease,—latency of important lesions from absence of the usual symptoms,—errors arising from a wrong interpretation of excepted phenomena,—and errors from over-valuing the importance of marked and prevailing symptoms.

The first case may be conveniently reviewed at two different periods, viz., from January until December, 1849; and from January until August, 1850. In the former, the disease was not physically decisive; but its existence, from experience of the latter, could not be problematical.

Case I.—*Slight Bronchitis; Persistent Diarrhœa, followed by a period of comparative health; Relapse of Bronchitis, with physical signs of Tubercle; Hemorrhoids; Laryngeal Affection; Diarrhœa; Death.*

Mr. P. S., aged 18, a clerk in a merchant's office, was first seen by me on January 1, 1849. His appearance was that of a fine, stout, muscular young man, with dark hair and eyes, a clear skin, and florid complexion. He complained of slight cough, which had existed for a short time, came on gradually, and was ascribed to cold. It was attended with some yellow, mucous expectoration, and lateral soreness. A careful examition disclosed, as the only thing abnormal, a slightly-increased intensity of the voice-sound under the right clavicle, and a subdued respiratory murmur under the left; indications which, with bronchitis present, were deemed of little import. In the course of a few days diarrhœa set in, which was attended with

some nausea and anorexia, and nocturnal perspirations. Under the usual treatment all the symptoms disappeared by the middle of April; from which time the patient enjoyed comparative health until Christmas of the same year.

During the first period Mr. S. continued to attend, as usual, to business. He did not lose flesh; and the illness so little affected his general condition, that, in the absence of direct indications, the existence of tuberculosis, though on one occasion suspected, seemed scarcely probable; and this view was still further corroborated by the fact of his apparent recovery for several months.

In December the cough returned; but, so slightly was his general health disturbed, that it was not until the month of April he revisited me. I now observed a marked change. His countenance was pale, and the expression anxious; his appetite and strength were greatly impaired; the cough severe, and attended with occasional vomiting and copious muco-purulent expectoration. Stethoscopic examination under the right clavicle gave a harsh inspiratory, and the same, but very prolonged, expiratory murmur. The percussion-note was also dull, but not comparatively so. The symptoms of phthisis now steadily increased. In June he was confined to bed with diarrhœa and hemorrhoids; pallor and emaciation became more marked. He vomited his food, and the voice became nearly inaudible. Ere the end of the month the dull note of the right apex became decided, and a cavernous *râle* displaced the harsh respiratory murmur. On the 1st of August he died.

The examination in April proved, beyond all question, the existence of a mass of tubercle in the right lung. The time had passed for treatment likely to avail. In less than three months the final stage was reached.

Now a question arises in the mind,—could the tuberculosis have been arrested in either period? We know that a certain recovery may occur in any stage of the disease. We have abundant proof in the writings of pathologists, and in our museums, that cicatrization of tubercular cavities may be effected; and that, in other instances, a calcareous deposit may take the place of pulmonary tubercles. But these results are so exceedingly rare, that, for all practical purposes, in advanced cases, they may be left out of the question. Not so, however, with regard to the earlier stages, where it appears, in a large proportion of cases, arrest may rationally be expected[a].

[a] In the First Medical Report of the Brompton Hospital, London, it appears that, in about 40 per cent. of the in-patients in the first stage of pulmonary consumption,

But was tubercle present in the first period? There certainly was no physical evidence; nevertheless the slight persistent bronchitis and diarrhœa, in my mind, sufficiently establish the affirmative. I agree with Ancell that it is of more importance, in reference to the general disease, to determine, not "whether a local tuberculous development exists, but rather, whether the patient is truly affected with the blood disease, and thereby threatened with its local manifestation. The successful treatment of the disease of the blood in this stage, based on a knowledge of its nature and causes, is in many instances certain. The successful treatment of the disease after it has localized itself is frequently impossible." This prior condition it will not, perhaps, be always possible to discover; and yet, in the present state of physical diagnosis, it supplies the only clue to an early, and therefore effective, management.

How long the state of tuberculosis may exist in an appreciable form, before dynamic indications of its presence appear, is a point, I believe, as yet undecided. My second case will distinctly show that eighteen months at least may elapse under the conditions referred to.

Case II.—*Bronchitis; Hemoptysis; Tubercle locally manifested; Diarrhœa; Death.*

Mr. Y., a captain in the merchant service, called on me, for the first time, 28th June, 1849. He was aged 28, of slender build, fair, and of clear complexion. He stated that he had taken ill about fourteen months previously, with cough and expectoration; which continued since with but little abatement. In April, 1849, he spat blood for the first time. On examination, I found his pulse about 100; but no physical signs indicative of tubercular deposit; and, though repeatedly examined, it was not until August 15th, that the least physical evidence was afforded. During the next eight months he appeared to have improved. The cough, however, continued, and debility was a constant symptom. In April, 1850, diarrhœa, with frequent hemoptysis, became additional symptoms; and, on the 14th of May, a cavity in the left apex was distinctly marked. Hectic now wore him daily, and he breathed his last in the latter end of June.

This is a good instance of extreme protraction of the disease; and especially the prolonged latency of the tubercular development. For the period of a whole year, the only appa-

much relief is obtained; and in 12 per cent. of the males, and 7 per cent. of the females, its progress seems to have been arrested for the time at least, if not completely.

rent condition was that of slight but continued bronchitis; and the suspicion of tubercle, as the cause, did not receive confirmation until the month following, when hemoptysis appeared. The lesson, then, which I wish to suggest from a consideration of these two cases is, that more attention is imperatively called to the early indications of the blood disease—tuberculosis, than of the deposit of tubercle.

My third case will be considered under three different aspects in successive periods, viz., the time prior to admission into hospital, the first month after admission, and the subsequent period.

Case III.—*Pelvic Tumour, occupying the left Iliac Region, rapidly attaining enormous magnitude, with vast Enlargement of left Thigh and Leg; Death; Autopsy.*

Eliza M'C., aged 50, married, was admitted into the Belfast General Hospital, February 11, 1851. Though of a spare figure, she had always enjoyed good health until about nine weeks previously; and her countenance was certainly not indicative of any constitutional disease. The certificate of admission stated that she was suffering from rheumatism of the left hip. On the usual inquiry, she mentioned that she had taken ill with pain in this region, which also extended along the anterior aspect of the thigh, was not relieved by a change of position, and yet was not increased by moderate exercise. Her pulse was 96, full and soft; the tongue furred, and white all over; the appetite was of late impaired; and frequent insomnia was induced by the severity of the suffering. On examination I detected a swollen and tender part, situated in the left iliac region. The tumour was indistinct; yet, from the tenderness, increase of temperature, and some degree of fulness, the fact of its existence was sufficiently made out.

A difficulty now arose as to the nature of this tumour. It presented all the appearances of an inflammatory swelling likely to end in suppuration; and this view seemed confirmed by the absence of any indications of a chronic blood disease.

Leeches were, therefore, applied, with the effect of relieving the tenderness. Nevertheless its size steadily increased, so that, on the 6th of May, the circumference of the abdomen, including the tumour, measured thirty-four inches. In this interval the patient became perceptibly emaciated, while the left thigh and leg gradually enlarged. At this time the tumour was dense, tender, and deeply fluctuating; and much pain and difficulty were felt in moving the limb. Soon a marked change occurred, both in the general and local condition. The pulse rose; the emaciation rapidly progressed; she became at times delirious,

and her memory defective. The most elevated part of the tumour assumed a purplish appearance, and the pain was constant, and occasionally agonizing. The contrast presented by the appearance of the two limbs was striking in the extreme, the circumference of the left thigh, at its upper third, being fully thirty-two inches, or about three times that of its opposite. The left ilium also greatly increased; and it was evident, on examination at this date, that the osseous structure was involved. Complete prostration now ensued, and she expired early in the following month. Before death an excellent cast of the tumour was taken *in situ*, which is deposited in the Pathological Museum. A careful examination of the diseased structure was made shortly afterwards, when it was found that the entire cancelli of the ilium were hypertrophied to an enormous extent, and charged with soft gelatiniform cancer.

It is more than probable that, for some weeks after the commencement of the disease, there was no evidence of the existence of a tumour. It is not very wonderful, therefore, that the neuralgia was ascribed to local rheumatism, which the case was supposed to be by the practitioner whom she first consulted. Then, when the tumour did make its appearance, the difficulty was not much diminished, for there was no symptom at all indicative of the real disease. On the contrary, the febrile symptoms, and the result of local examination, seemed to place the inflammatory character of the case beyond all doubt. The progress, however, soon disclosed its real nature; for, whenever the rapid enlargement of the tumour, and the gradual breaking up of the constitution were simultaneously observed, its malignancy was at once established. It is just possible that, had greater attention been paid to the circumstances of age, the gradual formation of the tumour, its position, and the absence of any ordinary cause, its serious character might have been earlier suspected. On the whole, the case is a remarkable instance of the close simulation which carcinomatous disease, in its formation, may bear to ordinary acute inflammation.

The next case is an example of the utmost pathological complexity. Several lesions were indeed latent throughout, and others, to which the attention was strongly directed during life, were found to be small in comparison with the expectations formed.

Case IV.—*Lumbar Abscess; Ascites; Dysentery; Hypertrophy of Liver; Tubercles; Extensive Pleuritis and Emphysema; Subacute Peritonitis; Erysipelas of Face; Death; Autopsy.*

John M'K., aged 25, a wood-turner, was admitted into the General Hospital, April 29, 1851. His appearance at once in-

dicated a scrofulous constitution. His illness was of twenty-one months' duration; but, during the first twelve months of this period, his general health was little affected, and he only complained occasionally of pain in the lumbar and right iliac regions. This pain then became fixed and constant, and in about three weeks an abscess formed, and discharged externally at a point in the loins two inches from the spinal column. A sinus remained, and has since continued open. The chest symptoms appeared about three months before admission, and were ascribed to cold. Troublesome cough, with offensive muco-purulent expectoration, has ever since continued. On admission he presented a very miserable appearance, being extremely emaciated and debilitated. Appetite and sleep had almost left him. On examination of the chest, there was slight dulness of the left apex, where the inspiratory murmur was bronchial, and the expiratory sound crepitant. Mucous and bronchial *râles* were heard at the upper part of the right lung. His abdomen was tympanitic, but not tender. (A more satisfactory examination was rendered impossible in consequence of his extreme debility.) Shortly afterwards, dysenteric symptoms set in, and the feet and ankles became œdematous. A second examination of the lungs at this time presented slight bronchophony, a harsh and tubular inspiratory, and prolonged expiratory, murmur at the right apex. The dulness formerly mentioned was not now observed. A few days subsequently he was attacked with erysipelas in the face, under which he rapidly sank (June 11th). The post-mortem examination revealed old pleuritic adhesions in both sides of the chest. A few small masses of grey and gristly tubercle were observed, especially at the apex, in the left lung only. The bronchial divisions of both lungs were filled with whitish serosity; and emphysema was noticed on the loose borders. The heart was atrophied, without other change. The liver was of a fawn-colour, very dense, and greatly hypertrophied. The peritoneum was here and there injected, and loose flocculi of imperfect lymph, with a few adhesions, and two quarts of straw-coloured serous effusion, occupied its interior. The intestines were unusually distended; the muscular and mucous coats thin and bloodless; the mesenteric glands were enlarged and hardened, but not tubercular; and, after the most careful search, no communication could be detected between the lumbar fistula and the peritoneal sac.

So far as could be learned by a careful examination of this case on admission, the principal diseases present appeared to be the old sinus in the loins, and the thoracic disorder. The

habit of body, the extreme emaciation, and, to a certain extent, the physical signs, all combined to lead the mind to tubercular disease; and the idea was rather confirmed by the supervention of the dysenteric symptoms. The second examination of the chest, however, after a month's interval, tended to disturb the first impression, as we find no progress in the supposed tubercular lesion, and as the co-existence of bronchitis with emphysema would explain the signs equally well. The tympanitic state of the abdomen prevented any reliable examination of the liver, the disease of which, had not the œdema of the ankles been ascribed to debility, might have been thereby indicated, while the existence of fluid was altogether uncertain. The autopsy, however, satisfactorily clears up the case. The old pleuritic adhesion, though doubtless the cause of the limited bronchophony, it was impossible to detect in the absence of historical symptoms of the disease. The enlarged liver having compressed the air-cells of the right lung, it is easy to account for the tubular respiration heard in that lung; while the emphysema will readily account for the prolonged expiratory murmur; and the bronchitis in association will at once interpret the remaining thoracic indications. It does not appear that the few gristly tubercles could have produced any serious symptoms.

It is difficult to account for the existence of peritonitis, which was plainly observed at the autopsy; had there been communication with the lumbar sinus, the explanation would be at once apparent. It is, however, not uncommon to meet with a form of sub-peritonitis in connexion with hypertrophy of the liver, which seems to be caused by the retardation in the portal circulation.

The case which I shall now adduce is an interesting instance of difficulty in thoracic diagnosis, and may be viewed under three aspects: one, from the present condition and past history; a second, from the additional testimony of the physical examination; and the third, from the effects of treatment.

Case V.—*Protracted dry Cough; Axillary Abscess, and subsequent Sinus; Pleuritis, effusive in the left Side, congestive in the right; Tubercle doubtful* (?).

Isabella J., a mill-girl, aged 17, was admitted into the General Hospital, 16th November, 1852. She was of slender conformation, and of a florid and clear complexion. She stated that she had been ill with slight cough for twelve months, and that for the last month it had considerably increased, and was

attended with dyspnœa, aggravated by attempting to lie on the right side. An axillary abscess, for which she knew no cause, formed last April; this temporarily healed, but soon after became fistulous, and has continued to discharge. She never complained of pain in the left side; never spat blood; and the cough was always dry. There were no unusual perspirations; and the bowels were always regular. The menses, however, have been variable in frequency and amount; and the appetite and health of late impaired. Within the last few days she has complained of sharp pains in the right side, which have impeded respiration.

The disease, which a reflection upon the case will so far present, would be latent phthisis, or pleuritic effusion, with recent pleurisy in the right side. The history and appearance would strongly induce the observer to look for tubercle; while the dyspnœa, the decubitus, and the dry cough, would, on the other hand, indicate pleuritic effusion. The balance seemed equal. We shall now see what further light the physical examination shed upon the case.

The thorax was of ordinary formation, but the intercostal movements on the left side were more limited than those on the opposite; the former measured half an inch in excess. Vocal vibration was absent; and over the entire lung, including the apex, the percussion-note was distinctly dull. Under the clavicle, the expiratory murmur was prolonged. Posteriorly, at every point, there was bronchial respiration, with bronchophony. At the angle of the scapula, on the right side, *frottement* was distinctly heard, and puerile respiration at all other points. On examination of the heart, the sounds were normal, but heard best at the inferior sternal region, where also the impulse was felt.

Now here, notwithstanding that pleuritic effusion was indicated by the extreme dull percussion-note, and the displacement of the heart, yet there were still arguments against this supposition. Whence the extension and uniform dulness, including the very apex? Whence the general prevalence of the bronchial respiratory murmur? Why, in a case of so great effusion, sufficient, it seems, to have dislocated the heart, had we not complete absence of the respiratory sounds, at least at the base? Do we not find, that when the bronchial respiration occurs in pleuritic effusion, it is limited to the inter-scapular or superior anterior regions? and that, under such circumstances, the fluid gravitates to the base, and compresses the superior lobes against the parietes, where a comparatively clear sound, on percussion, should exist? But here, on the con-

trary, we had *marked* dulness at the very highest point, and bronchial respiration at the very base. Then, again, some of our best stethoscopic authorities argue that the existence of the bronchial respiratory murmur is the exception, and that its presence must depend upon at least co-existent consolidation. Thus Barth and Roger:—"For ourselves we should say, that bronchial respiration can be heard in pleurisy, but that, for the most part, it is *not* heard. The tubular blowing is an exception to this disease, and an exception, moreover, so rare that, when it is heard, something else than a *simple* pleurisy should be suspected"[a]. Again, "the pathognomomic sign of pleurisy with effusion is the silence of the respiratory murmur, and *not* the presence of the bronchial respiration. And if it be perceived elsewhere than in the neighbourhood of the roots of the air-tubes, the pleurisy is not simple, but is complicated with pulmonary induration." Fournet states as his opinion, that the bronchial character can only be heard at the very commencement, or in very limited effusion, but disappears when it becomes copious[b]; and indeed all agree, that bronchial respiration is a phenomenon almost always limited to the sites of the larger bronchial divisions. Looking at the case with this idea prominent, and observing the uniform dulness of the lung, it seemed impossible to ascribe the signs solely to pleuritic effusion. What then was the other supposition? Chronic pneumonia, or tubercles, or it might be that peculiar condition named cirrhosis. The history told against the idea of pneumonia, as not a single symptom could be adduced to suggest its existence. Tubercle it might be, but not simple, as then we should have observed signs of an advanced stage at the apex, had infiltration been sufficiently general in the lower lobe to cause obliteration or compression of the air-cells. This idea also would not explain the enlargement of the side, and the displacement of the heart, and it would be quite exceptional to find a total absence of expectoration for the long period of twelve months, had such extensive infiltration occurred. Any view taken was surrounded with difficulties, and it was determined to act cautiously at first, on the idea of simple inflammatory effusion, and patiently await the result.

Accordingly, an ointment composed of the mercurial ointment and that of the hydriodate of potash was ordered; the side to be well rubbed with it night and morning.

After the lapse of ten days, a careful examination of the chest was again instituted, and this time with important results.

[a] Newbigging's Translation, pp. 64, 65. [b] Brady's Translation, p. 177.

Over every part of the left lung the percussion-note was very much clearer, especially at the upper part and anteriorly; and at all points, even as high as the clavicle, was a distinct friction sound heard. The heart had nearly assumed its natural position, and the patient could lie equally well on either side. The dyspnœa and cough were also greatly relieved, and, in every respect, she progressed most favourably. This amendment steadily increased; and in the course of another ten days she left the hospital almost well, there being but very slight dulness remaining at the base of the left lung, and the respiratory murmur having returned. I must observe, however, that the prolonged expiratory murmur, heard originally at the apex, was present when she left, and accompanied by a slight comparative diminution of resonance under the left clavicle.

Here, then, we find that simple pleuritic effusion, even to such a large extent as to augment the circumference of the side more than half an inch, and to displace the heart, may yet only compress the lung so as to admit of a general bronchial respiration being heard, and not so much as to obliterate all sound. It is plain that this fluid must have enveloped the lung pretty equally all round, else would the lung have floated, and the superior parts sounded clear on percussion? There must also have been some adhesions near, or at the base, to have prevented the floating of the lung, and permitted the fluid to assume the form of an envelope.

This rare form is adverted to by Walshe in his recent work. Thus, he says, "if there be adhesion, or agglutination of the pleura, respiration of the diffused blowing type (often sufficiently marked to suggest the idea of hepatization) is more or less extensively audible; the presence of condensed lung near the surface sufficiently explains its existence. But it is not alone in these cases of adhesion that blowing respiration may attend pleuritic effusion; it may be present when no adhesion exists and the effusion is abundant." He further adds, however, that in these cases it is for the most part very slight, deep-seated, and generally limited to the middle height of the back.

Hughes remarks upon this peculiarity as a most curious exception, and one most difficult of explanation, and refers to one case where not only was tubular breathing general, but a shrill resonance of the voice was distinctly audible over the whole side: the very phenomenon which occurred in the case under consideration. And Williams has, in consequence of hearing tubular respiration so very marked and tracheal, at the upper region of the affected side, been more than once deceived into the belief that there were caverns underneath.

This case, I think, sufficiently exhibits the importance of weighing well all the possibilities, *pro* and *con*, before explaining the physical signs according to the more usual interpretation. The physical signs are there; nature cannot err, and it is hence our duty, by careful examination and a knowledge of all possible contingencies, to read her lessons aright. I need scarcely add, of how much value a true diagnosis in such cases as this is calculated to be to the practitioner, in a therapeutic aspect. Let us gain a correct knowledge of any disease and its *nature*, and we are in the fair way of contending against it with success; otherwise all is darkness and blind uncertainty. But more especially are these remarks of import when a diagnosis has to be made between a case of inflammation and one of tubercle, lesions whose proper management is so much at variance.

In my next case the principal disease was for a considerable time only suspected, and the secondary affection overlooked altogether, in consequece of the absence of the usual symptoms and their general want of harmony. I shall consider it at two different periods.

Case VI.—*Chronic Dyspepsia; Vomiting a principal Symptom; Progressive Emaciation; Distinct Remission; Relapse, with Peritoneal Effusion; Death; Autopsy.*

A medical practitioner, aged about 56, resident all his life in a country district in the neighbourhood of B———, consulted an eminent physician in November, 1851. The habits of the patient were extremely active and temperate. He was always accustomed to uncommon exertion in his daily practice, and yet found time to take a prominent part in promoting the interests of scientific societies not immediately connected with his profession. His health was generally excellent throughout a long career of practice. In the autumn of 1851, however, his friends noticed an unfavourable change in his appearance. He became older looking than what his years would indicate, and he had, from consciousness of infirmity creeping on, considerably curtailed the range of his practice. It was not until early in November, that the *malaise* assumed a distinctive form. The symptoms were now prominently gastric; vomiting of food at varying intervals, but generally a considerable time after ingestion, with debility and constipated bowels, were amongst the principal.

I first had an opportunity of seeing him on the 19th. He stated that he had been then six weeks ill. During this time he had become considerably emaciated, yet his pulse was perfectly

quiet, never higher than 68 or 70; his tongue clean; and he complained of no pain, even on pressure, over the epigastric region. For about one month the symptoms improved but little, yet afterwards he began perceptibly to amend. The vomiting became only occasional, the emaciation ceased, and his general appearance and strength became much improved. From February until May his health was so far restored, that he was able to resume a portion of his usual avocations to a certain extent, and we had great hopes that he would eventually recover.

The impression during this interval entertained of the nature of the case vibrated between the idea of functional derangement and organic change. The returning health, together with the appearance, during the period of improvement, of small dark scybalæ in the evacuations, certainly favoured the former, while the absence of all pain or tumour, and the complete remission of the symptoms, seemed to put out of the question all idea of the latter.

In May, however, the symptoms supervened. The brief respite from suffering only ushered in a more marked change. He began now to complain, for the first time, of distention and uneasiness of the abdomen. The appetite declined, the strength again gave way, and the gastric irritability returned, but never to the same extent as formerly. The evacuations were scanty and difficult, and the tongue now first assumed the aspect of constitutional irritation. Yet the pulse, strange to say, remained at the usual low figure of health. Towards the latter end of this month, however, it rose a very few beats, and the other symptoms decidedly increased, with the addition of an uneasy sensation in the rectum—which annoyed him especially during and after each evacuation, some œdema of the ankles, and a slight bronchial affection which now set in. The rectum was carefully examined; and it was only now that we had a full idea of the extent of emaciation and prostration which had gradually ensued. We observed a fringe of old piles at the anal margin, and within, the prostate was felt enlarged, hard, and protruding into the bowel. He so perceptibly felt the change in this organ, that he was strongly impressed with the idea of a tumour. It gave him, however, no pain, and its apparent magnitude was in a great measure due to the deficiency of adipose substance in the vicinity of the rectum, which permitted a certain degree of falling, or prolapse of the prostate into the gut. From this time he sank rapidly, and on June 4th expired without a struggle, or indeed any change of symptoms.

The original idea of cancer received much corroboration

during this period; but the source of the abdominal uneasiness was not clearly divined. At one time—and it is not a little distinctive of the soundness of his judgment—he had himself the impression of inflammation; but this idea seemed scarcely tenable, when it was considered that not only could he bear pressure over the abdomen with impunity, but that he actually had it firmly swathed with a roller, which gave him positive comfort. Besides, the pulse never exceeded 75 beats in the minute, prior to the moribund period at the close. Nevertheless he could not divest himself of the idea he had formed of peritoneal inflammation; and, as the examination proved, his fears were indeed too true.

An autopsy was held on the third day after death. The body was extremely emaciated; the abdomen was greatly distended, with intestinal gaseous accumulation, and upwards of two gallons of a bloody fluid in the peritoneal cavity. The surface of the peritoneum was greasy, and shreds of imperfect lymph were abundantly scattered over it, but without any adhesions. The stomach was greatly contracted. It certainly could not have held more than six ounces of fluid; but the walls were thickened by carcinomatous deposit to at least three-eighths of an inch, especially at the pyloric extremity. Its mucous surface was dark grey, but otherwise normal. A section of the coats presented the same appearance as is so accurately and beautifully delineated in Cruveilhier's plates[a]. The whole tract of the intestine presented nothing unusual, nor did the mesenteric glands. The kidneys were atrophied; dark, soft, but not diseased. The prostate was simply hypertrophied; the bladder, and, with the exception of the external piles, the rectum, presented a natural appearance. The other abdominal organs were likewise healthy.

The thorax was also examined. Some tinged fluid occupied the pericardial sac, which was otherwise natural. The heart itself was grey and soft, and, on microscopic examination of a section, presented a characteristic example of fatty degeneration—the pulpy yellow transformation, to a considerable extent. The lungs were quite healthy, but the pleura presented some old standing adhesions.

The slightest reflection upon this examination will at once account for the absence of pain in the gastric region; the mucous membrane was intact, the deposit was in the submucous tissue; but the absence of abdominal tenderness cannot be so readily explained. It is, perhaps, to be considered that

[a] Livraison 27, pl. 1.

as the peritoneal affection was completely asthenic, and occurred when the powers of life were fast failing, sensation would be so greatly impaired as to present only the form of uneasiness which the patient certainly complained of; and it will also be recollected, that, in the course of peritoneal disease, it is not uncommon to meet with a complete remission. The case then shows us the diagnostic importance of attending particularly to even apparently trifling indications of inflammatory action, when occurring in the course of a constitutional disease, or in subjects of advanced age, and debilitated vital power.

The last case which I shall at present adduce presents a unique example of the persistence of derangement of an organ which proved to be only sympathetically affected, but which was supposed to be structurally engaged. The impressions formed of the nature of the case, at different periods, were three, viz., first, hepatic disease inducing duodenitis and irritable stomach; second, cancer of the pylorus; and, lastly, disease of the brain.

Case VII.—*Dyspepsia for two years; Hematemesis; Persistent Vomiting and frequent Hiccup, with severe but variable Cephalalgia; Convulsions; Death; Autopsy.*

Mary C., aged 27, was admitted into the Belfast General Hospital, 21st June, 1852. She was extremely emaciated and debilitated; and though on the previous day attacked with delirium and convulsions, was now quite sensible, and complained of intense headach. On her way to the hospital she had vomited. Through the kindness of my talented young friend, Mr. Henry Johnston, I was enabled to ascertain her complete history, which for a considerable time before admission had anxiously engaged his attention. It appears that she had been ailing for a period of two years with anomalous dyspeptic symptoms, during which she had been gradually losing flesh; that ten months previously she had an attack of hematemesis, and again on three or four occasions; and that since, she has frequently complained of headach and vertigo, which were occasionally very severe. The menses had been absent several months, during which the gastric symptoms were greatly aggravated. She vomited food almost regularly, complained of soreness and burning at the epigastrium and left hypochondrium, and frequently of palpitation. Her immediate relatives, when questioned as to the cause, were of opinion that the anxiety of mind induced by a disappointment in marriage had been an essential source of her maladies.

On March 10th, when it appears she first applied to Mr. Johnston, the following was her condition:—Her appearance was pale, and much debilitated; her colour of a light, dusky-yellowish hue; her pulse was small, feeble, and 80. She complained of severe headach; there was neither cough nor expectoration. The tongue was furred at the edges, and along the centre was a brown streak. There was no thirst; but vomiting was very frequent, and about one hour after meals, with soreness of the epigastrium and left hypochondrium, and frequent hiccup. The bowels were regular, and the evacuations various; the urine brown, and charged with lithate deposit. Under the idea that the irritability of the stomach was connected with and dependent upon inflammatory action going on in the duodenum and liver, she was mercurialized, but without any real relief. A slight remission, it is true, occurred towards the end of March, but early in April the symptoms steadily augmented in severity. The vomiting and hiccup became now almost constant; and the attention was strongly directed to the stomach, as being most likely the real seat of the disease. A careful examination was made on April 13th: neither tumour, nor tenderness, nor dulness on percussion, gave the slightest countenance to this impression. Mr. Johnston noticed at this time that the vomiting was always induced by suddenly sitting up, or after changing her position, and was more marked in the mornings. Lime water and milk, which she had been getting from the beginning of the attendance, was the only form of nourishment which was retained.

On May 10th the case assumed so much the appearance of malignant gastric disease, that all idea of any other organ being engaged except the liver, which still seemed probably involved, was lost sight of; and indeed the symptoms were most deceptive. The vomiting was most constant; occasionally blood would appear in the matters ejected; the skin became dry and shrivelled, and emaciation progressed.

Two days previously to admission, the pain of the head became suddenly intense,—a sharp, cutting pain darting from the forehead to the left mastoid process, and attended with constant ringing sounds. This was soon followed by a marked convulsion of the left arm, and partially of the left side of face, with delirium. The following day, however, all this had passed off, and she became sensible as usual, and in this condition she was admitted into the hospital, where she died suddenly, and without apparent struggle, on the evening of the second day. A post-mortem examination revealed what was but little expected,—a *normal* state of the stomach, liver, and all the ab-

dominal and thoracic organs. The brain was very carefully examined, and the only structural alteration observed was the existence of a defined spot of ramollissement in the centre of the right crus of the cerebellum. The softening was very distinct when compared with the symmetrical part. On microscopic examination, also, it presented the exudation granules figured by Bennet.

The records of pathology show us, that sudden cerebral symptoms at the close often prefigure this lesion, though there may be little disorder previously of the nervous functions. This case is, however, remarkable for the circumstance of protracted gastric irritation simulating the best-marked cases of carcinoma, wholly dependent on the cerebral disease, which must have formed exceedingly slowly, and without presenting any impairment of motion, and only temporarily of intelligence at the close, throughout the progress of the case. I cannot discover its parallel, although I have consulted several of our standard pathological works. Abercrombie, indeed, has narrated cases in which ramollissement of very limited extent was found as the only morbid appearance, in connexion with symptoms of long standing; but these symptoms were not, as in the present case, almost wholly gastric. Though, on admission into the hospital, attention was at once directed to the cerebrum, yet previously I question whether any, even the most experienced mind, would have been led to divine the real lesion in the case.

The foregoing illustrations are intended to present a sample of some of the difficulties that beset medical practice. I believe firmly, the more we are acquainted with such, the more we are stimulated to search into and unravel the mazes of the conflicting phenomena of obscure cases, the better practitioners we must become. Scholarship will not stand us in good stead here. Experience can only thus be early acquired. If such an object be in any degree promoted by these contributions, my aim is accomplished.

And I would here most earnestly beseech the seniors of our body to impart even a little of the vast mass of practical hints which time and observation have afforded, in further elucidation of this interesting inquiry, for the common benefit of all. Ours is a noble profession—noble in the noblest sense. It hides nothing for selfish ends which it thinks calculated to advance the interests of our science or art. Let none, then, of those who have already gained amongst their fellows the high reputation of distinguished practitioners, and the golden opinions of the general public, refrain, from any consideration, from imparting

the fruits of their successful experience. I feel convinced that, if our profession is to advance much as a practical study, it can only be by elaborate, but ordinary, intelligent observation *at the bed-side*, going hand in hand with the results of a pure scientific research.

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Art. VI.—*On the Medical Evidence of Death from Drowning, in relation to the Case of W. B. Kirwan.* By Alfred S. Taylor, M.D., F.R.S., Lecturer on Medical Jurisprudence at Guy's Hospital, London.

[After the trial and conviction of W. B. Kirwan, at the Commission Court in Dublin, in December last, for the alleged murder of his wife, an appeal was made to me, by several gentlemen of good professional standing in London and Dublin, to state my opinion regarding the validity of the medical evidence against the prisoner. The subjoined paper embodies that opinion. It was not written originally with a view to publication in a medical journal, but to aid in bringing about a revision and a reconsideration of the medical evidence upon which the conviction appears to have taken place. It has been suggested to me that the publication of this short paper, in the Dublin Quarterly Journal of Medical Science, would be attended with some advantage in reference to a very obscure and very difficult branch of medico-legal inquiry; and I have, therefore, assented to its appearance there. In considering the whole case, it seemed to me that, notwithstanding the moral and circumstantial evidence against the accused, the learned judges who presided at the trial considered the medical proof of *violent death* to be absolutely necessary to conviction. The jury, by their verdict, came to the conclusion that the cause of death was violent, and from the hands of another; but the appearances of the body, so far from supporting, rather tended to rebut, this view. Such, at least if I am rightly informed, is the conclusion to be drawn from the medical facts. But for the moral circumstances adduced against the prisoner, it is not possible to suppose that, in the absence of any marks of murderous violence on the body, to bear out the theory of the prosecution,—of any marks of violent struggling or resistance,—and in the absence of any of the special signs of drowning or strangulation on the body of the deceased, this man should have been convicted of murder. A question then arises whether any amount of moral evidence can compensate for a deficiency of proof of the cause of death? From a sentence extracted from the charge of the learned judge,

and placed at the head of the subjoined paper, the answer to this question must, I apprehend, be in the negative. The proof of a violent death is an essential part of the proof of the alleged crime; and in Kirwan's case this proof, medically speaking, is deficient. Had the signs and appearances of the kind of death (drowning and suffocation by pressure) by which the deceased is alleged to have been destroyed, been properly placed before the jury, they must, in my opinion, have been led to entertain a rational doubt whether death in this case was so clearly traced to violence at the hands of another, as to justify a conviction for murder. Different degrees of evidence satisfy different minds; but a medical witness is bound to base his opinion on medical circumstances, and when these are not forthcoming, he cannot be allowed to supply their place by moral circumstances. It may be that some criminals will escape by a strict adherence to this rule, but this is of small importance to society, compared with the punishment of one who is really innocent. Looking at the unsatisfactory nature of the medical evidence of violent death in the case of Kirwan, it would certainly have justified a verdict of Not proven.]

In the charge to the jury by the learned judge who tried this case I find, according to the published reports, the following remark:—

"But if you are unable to satisfy yourselves as to whether this was a VIOLENT DEATH or a NATURAL DEATH, you ought to give the prisoner the benefit of your doubt,—your rational, well-founded doubt,—and to acquit him."

The jury appears to have been satisfied, from the *medical evidence*, that this was *not* a natural but a *violent* death, and to have returned a verdict accordingly.

With deference to the medical witnesses who gave evidence on this occasion respecting the cause of death in the case of Mrs. Kirwan, I beg to submit that the appearances in the body did not justify the inferences drawn,—that these appearances fail to prove that the deceased died a violent death; and that they are quite reconcileable with the view that the deceased died, while in the water, from a sudden attack of apoplexy or epilepsy.

The evidence of Mr. Hamilton, who saw the body on the day following its removal from the water, included the following points:—

1. There were abrasions of small extent about the right temple and eyelids.

2. A white froth, untinged by blood, issued from the mouth.

3. The countenance was rather pale.

4. There was a stream of blood on the cap, which appeared to have come from the ear.

5. There were no wounds or marks of violence about the body[a].

On the 6th of October, *thirty-one days* after death, the body was inspected by Dr. Hatchell. From this examination it appears:—

1. That there were abrasions in the situations indicated by Mr. Hamilton.

2. That there were no marks of violence, of stabs, cuts, or fractures, or of any injury likely to cause death.

3. That the right eye protruded; the upper lip was swollen; the inside of the lip vascular; the tongue protruded and marked by the teeth; the genital organs vascular, and containing more blood than was natural.

4. The brain was of a light pinkish colour, and very fluid, owing to decomposition. The lungs were healthy, but *congested* posteriorly, inferiorly, &c.; this congestion assigned to engorgement of blood during life[b]. The heart was healthy, and was *empty* both at *the right* and the left side, as were also the *large vessels* connected with it.

5. There was nothing to indicate that any weapon had been used.

6. It is to be inferred also, from the foregoing statement of the condition of the body, that there were no marks of a ligature or of violent compression about the mouth, neck, or chest.

7. The stomach was found *empty* and contracted, and there was no *froth or frothy mucus* in the trachea, bronchi, or air passages.

8. The abdomen was much distended with gas, and the diaphragm *much pushed up.*

Taking these statements to represent the condition of the body of the deceased, I would beg to observe, that there is nothing here of a medical nature to *prove* that the deceased died by drowning, or by any form of asphyxia, such as suffocation or strangling.

The most important and well-marked appearances of DROWNING are:—

1. The presence of a frothy mucus and fluid (*tinged with blood*, in cases of great congestion during life) throughout the air-tubes of the lungs.

[a] "A few scratches as if from rocks."—*See Information taken on the 7th September*, 1852.

[b] "The lungs collapsed, and the minute vessels gorged with blood."—*Printed Information, 15th October*, 1852.

2. The presence of water (salt-water if in the sea) in the stomach.

3. Congestion of the lungs, with a full and distended condition of the RIGHT SIDE of the HEART, and of the great blood-vessels connected with it.

The appearances observed by Dr. Hatchell in the body, after it had been buried in a *wet* grave, *thirty-one days after death*, appear to me to reveal no more than the general effects of decomposition, which must, upon his own admission, have advanced to a considerable extent, to have rendered the *brain fluid*, and to have caused a *pushing* up of the diaphragm by the gas in the intestines. Engorgement or infiltration of blood in the small vessels of the posterior and inferior parts of the lungs, as well as of the lips and genital organs, may naturally be expected where decomposition has gone on to this extent; and in my opinion no inference presumptive of death by drowning, or by any form of suffocation, can be safely drawn from the appearances which he saw and has described. Such changes, excepting the abrasions externally, might be found in any dead body buried for a month in a wet grave, and quite irrespective of violent death. In so far as the appearances can be relied on, they actually prove that the only certain signs of death from drowning were wanting:—

1. There was *no froth* or frothy mucus in the trachea.

2. There was *no water* in the stomach.

3. There was *no blood* in the *right cavities* of the heart, or in the great vessels connected with it.

The froth observed by Mr. Hamilton as issuing from the mouth recently after death may have been produced as well by a fit, causing death while a person is in the water, as by actual drowning. This froth was *not tinged with blood*, a fact quite adverse to the theory that there was such congestion in the respiratory organs from great pressure exerted during life as to cause oozing of blood from the ears.

It is true that a person may be drowned without necessarily swallowing water, or struggling so as to produce a frothy mucus in the air passages of the lungs: but then the *medical proofs* of drowning are entirely wanting, and the person may have died from some other cause, and not from drowning. When these well-marked appearances are absent, there is an entire failure of *medical evidence* respecting this species of death. I believe that the only appearance on which Dr. Hatchell relies—engorgement of the vessels at the posterior and inferior parts of the lungs—may have been due to post-mortem changes: it is not of the least value as medical evidence of drowning

unless observed soon after death; and unless attended with other appearances which, upon the assumption of death by drowning, or by some other form of asphyxia, ought always to accompany it.

One of the most striking characters of *asphyxia*, including death from drowning, hanging, strangulation, and suffocation, is a *distention* of the *right cavities* of the heart, and of the large blood-vessels connected with these cavities, *with black fluid blood*. This condition is a necessary result of the engorgement of the vessels of the lungs, when this engorgement is really due to asphyxia; and if, *even in a recent inspection*, we find a distention of the lungs *without a corresponding distention of the right cavities of the heart*, we cannot (unless other circumstances supply affirmative evidence) be assured that the person has really died of asphyxia.

In the examination of the drowned, and of persons who have been strangled, as well as in experiments on animals drowned, strangled, and suffocated, this condition of the heart has been, according to my observation, an invariable accompaniment of engorgement or congestion of the vessels of the lungs. Cases have been met with where the lungs have not been found gorged, and the cavities of the heart empty; but I cannot call to mind a case where the *lungs have been found engorged as a result of asphyxia, and the cavities of the heart empty!* The absence of the distention from one or both organs would in general render it impossible to give, upon medical grounds, an affirmative opinion that death had taken place from asphyxia.

At page 622 of the last edition of my work on Medical Jurisprudence (fourth ed., 1852), I have recorded a case of murder by the forcible immersion of a female in a pond. The mode of death corresponds somewhat to the theory adopted by the prosecution in the case of Kirwan, i.e. the deceased died from the effects of drowning, and by an amount of pressure or violence which mere drowning would not explain. The case occurred to my friend Mr. Image, a surgeon at Bury St. Edmunds, Suffolk. Contrast the medical evidence respecting the cause of death in this and Kirwan's case. Froth and mud were found in the mouth and fauces, also in the air tubes, as well as pieces of green weed from the pond. The stomach contained a pint of liquid, mixed with *mud* and *sand*. The lungs were engorged and greatly distended, *containing much fluid and frothy mucus*. The state of the heart is not described in my published account, but knowing the importance of the observation, I wrote to Mr. Image, to inform me of its condition. In a letter dated Bury St. Edmunds, May 17th, 1852, now lying

before me, he says, "*Both right and left cavities of the heart were filled with black fluid blood.*"

My friend, Dr. F. Ogston, of Aberdeen, has had great experience in the inspections of the bodies of the drowned. When I held the Editorship of the Medical Gazette he sent me a series of papers on this subject, not for the purpose of supporting any particular theory in any particular case, but as a *dry record of medical facts.* In reference to the appearances now under discussion, a paper by him will be found in the Number of that Journal for August 15, 1851[a], in which he gives an account of the condition of the heart in fifty-three inspections which he made of *drowned subjects.* The right cavities were found empty only in *two* instances, and in one of them the person had been fifty-six days dead, and in the other dead for an uncertain time. If any reliance is to be placed upon the examination of the body in the case of Mrs. Kirwan, the appearance presented by the heart destroys the inference drawn from the engorgement of the lungs, and proves, or renders it in the highest degree probable, that this lady did not die from drowning or suffocation.

But it may be said, frothy mucus may have existed in the air-passages at the time of death,—so also the heart may have been distended with blood, and the stomach may have contained water,—that in fact decomposition may have led to the obliteration of these conditions. If this view is to be adopted, then the inference of death from asphyxia (drowning or suffocation) must be based, not on medical facts, not on appearances actually presented by the body, but on a series of assumptions. Such a course would be most dangerous, and when *no mark of violence on the body existed to indicate death from asphyxia,* it would be equal to declaring a man guilty of murder, not upon scientific proofs, or upon data confirmed by experience, but upon mere conjecture.

The theory of death assumed by the prosecution is not only not proved, but actually disproved by the appearances found on the body. Had the dead body of Mrs. Kirwan been found inland, at some distance from the water, her clothes removed, and no appearance of wetting about the body or hair, it appears to me impossible that any medical man in examining the body, and finding only the appearances described by Dr. Hatchell, could have arrived at the conclusion, that death had taken place from forcible drowning, or from asphyxia by compression, as a result of manual violence.

The slight abrasions found on the face, temple, and chest,

[a] Vol. xlviii. p. 290.

with the slight cut on the right breast, might have resulted from the deceased falling on her face, and from her struggles in dying. The bleeding from these parts, including bleeding from the ears, may have arisen from the fact that the body was warm, and the blood was prevented from coagulating by reason of its continual removal by the water. Abrasions about the ears may thus give rise to bleeding in drowned subjects. The bleeding from the ears does not appear to have been very considerable, Mr. Hamilton states, that when he saw the body the day after removal from the water, the whole accumulation amounted to a stain of the size of a five-shilling piece upon the cap. The blood appeared to have come from the ear.

I do not assent to the inference drawn by the prosecution, —that the *bleeding from the ears* was a proof of congestion arising from forcible compression. Any congestion arising from compression or constriction of the neck, which would have caused effusion of blood from the ears, would have also led to effusion of blood or bloody froth from *the mouth and nostrils*,—to a *bloated and livid condition of the face*, and to *permanent marks of such compression* on *the head, neck, or chest.* The absence of all these conditions, in my judgment, vitiates the inference,— that no other cause could have produced this bleeding from the ears than congestion from forcible compression. I have had occasion to see this bleeding from the ears in cases of murder by strangulation, but it was accompanied by those well-marked indications of violence to the neck and chest, which, in my opinion, are necessary to produce it. Further, it was accompanied by an escape of blood or bloody froth from the mouth and nostrils, and a livid and bloated state of the features. In Mrs. Kirwan's case, if the face when seen by Mr. Hamilton was rather pale, if no blood escaped from mouth or nostrils, and there were no marks of violent compression on the neck or chest, the inference drawn respecting the bleeding from the ears is, in my opinion, erroneous. As the witness who drew this inference did not see the body until thirty-one days after death, he was not in a position to speak positively on the cause of this bleeding from the ears.

The bleeding said to have taken place from the *vagina* did not arise from any wound in that part. I have not known it to occur in drowning. It was not observed in the murder of two females by strangulation in a very violent form, which I have had occasion to examine within the last two years[a]. There

[a] Reg. *v.* Drory, Essex Lent Assizes, 1851; Reg. *v.* Pinckard, Northampton Lent Assizes, 1852.

was most violent constriction and congestion produced in both of these cases, but no effusion of blood from the vagina.

Was this bleeding the result of passive menorrhagia, or the recurrence of menstruation, as a result of shock soon after that function had ceased? In relation to the cause of death, as it did *not proceed from any wound*, it proves nothing. It is as difficult to reconcile this effusion of blood with the theory of death from violence, in a case like this, where no indication of violence from constriction or compression is apparent on the body, as with death from an attack of epilepsy or apoplexy. To assume that it is a *proof* of death from some form of asphyxia, as a result of forcible compression, would be most unjust. It is a rare condition in asphyxia, and not a constant accompaniment or sign of the suffocation or strangulation of females.

The fact that the genital organs were found vascular and injected, amounts to nothing; because the observation was not made until thirty-one days after death, and decomposition in the abdomen had advanced so far as to cause great distention of that cavity, and a pushing up of the diaphragm. Gravitation, as well as the mechanical effect of this compression on the blood contained in the abdominal and pelvic viscera, might account for this increased vascularity. As it was not observed when the body was recent, it is a sign of no value as an indication of the cause of death.

The theory suggested by the prosecution,—that deceased was suffocated by a sheet being placed over her head, derives no support from the appearances of the body. Such a mode of suffocation would not prevent violent struggling, the swallowing of water, the marks of great resistance, of great injury to the back and arms—where rocks and shingle were beneath, the evidence of great pressure on the neck or chest, which could not fail to strike the first observers of the recent body. The prisoner could not have thus destroyed life without wetting his coat as well as his trousers; or without, probably, showing the marks of considerable wetting, of struggling or resistance, on his person or dress. This theory is not supported by the examination of the body. The *heart* is found *empty*, whereas in suffocation the right cavities should be *distended*. If it be suggested that the cavities of the heart may have been filled, but emptied as a result of gaseous putrefaction, then it would be only fair to say, that the inspection, made thirty-one days after death, threw no light on the cause. In a question of life and death it would be most unjust to assume that conditions had existed of which

there was no proof, or to assert that the fulness of the lungs allowed of a strong inference against the prisoner, while the emptiness of the heart was not a circumstance in his favour.

I assert, as my opinion, from a full and unbiassed examination of the medical evidence in this case, that, so far as the appearances of the body are concerned, there is an ENTIRE ABSENCE OF PROOF that death was the result of violence at the hands of another. Persons while bathing, or exposed to the chance of drowning, are often seized with fits which may prove suddenly fatal, although they may allow of a short struggle; the fit may arise from syncope, apoplexy, or epilepsy. Either of the last conditions would, in my opinion, reconcile all the medical circumstances of this remarkable case.

It is the result of twenty years' experience in the investigation of these cases, that the resistance which a healthy and vigorous person[a] can offer to the assault of a murderer, intent upon drowning or suffocating him or her, is in general such as to lead to the infliction of a greater amount of violence than is necessary to insure the death of the victim. The absence of any marks of violence or wounds on the body of Mrs. Kirwan, excepting such small abrasions as might have resulted from accident, may be taken in support of the only view which it appears to me can be drawn,—namely, *that death was not the result of a homicidal drowning* or suffocation, but most probably of a fit resulting from natural causes.

A remarkable case of sudden death from epilepsy, under circumstances which might have led to great suspicion, is recorded by Dr. Ogston in his papers on drowning:—

"A man was in the act of leaving a privy when he was seized with an epileptic fit, and fell with his face in a piece of dirty water which did not exceed a *foot and a half in breadth*, with a depth of from *three to four inches*. When discovered after death, only his mouth and nostrils, and one cheek were found to have been under water"[b].

This case might be easily worked into a case of alleged murder. How could a person have been drowned or have died under such circumstances? Let this be duly considered in drawing inferences from the position of dead bodies found in shallow water.

There can be no doubt that had the inspection of the body of Mrs. Kirwan been most carefully made within forty-eight

[a] Dr. Hatchell describes the body as "that of a fine, healthy woman."
[b] Medical Gazette, May 2, 1851, vol. xlvii. p. 763.

hours after death, we should not now have to speculate on the cause,—we might have had better data for an opinion. In the meantime, because it was not thus and then inspected, conditions of the body, adverse to the presumption of natural death, must not be assumed to have existed in order to work out a charge of murder against a man accused of the crime.

I have always regarded it as a necessary condition to support a charge of murder, that the evidence of the *cause of death from violence* should be distinct, conclusive, and satisfactory. In this case, the medical proofs utterly fail to make out a *violent cause of death.* Reliance is placed on engorgement of the vessels of the lungs and congestion of the vagina, *found only after thirty-one days' interment*, in a decomposed body; while the emptiness of the heart and great blood-vessels,—the absence of salt water from the stomach, mouth, fauces, and lungs,—and the absence of frothy mucus from the air-passages, are conditions adverse to the cause of death assigned by the medical witness for the Crown. The absence of these appearances creates a very strong presumption of natural death; or even in taking an adverse view against the prisoner from other and non-medical circumstances, their absence throws so much doubt on the allegation necessary to prove his guilt, namely, that the death was violent, that he should undoubtedly, with a proper representation of medical facts and inferences by the medical witnesses, have received the benefit of it.

If a man is charged with murder by poison, death from poison must be *proved*,—the appearances in the dead body must not leave it doubtful whether death was caused by disease or poison. If the usual signs of poisoning (inflammation) are absent, a medical witness, unless there be other strong and direct evidence of poisoning, would not be allowed to infer that inflammation might have been present at an early inspection of the body, but had disappeared when he examined it, because in his opinion the condition had been destroyed by changes in the grave. This is conjectural evidence. It is mere matter of opinion, and must not be allowed to weigh against a prisoner when the cause of death is really involved in doubt. Dr. Hatchell, in the case of Mrs. Kirwan, was placed in a difficult position. He had to give an opinion on the cause of death from an inspection made thirty-one days after death, the body having been placed in a wet grave, and decomposition having advanced to a considerable extent. He probably gave the best opinion that he could from the only appearances which he found, but in doing this, he overlooked, as it seems to me, the importance

of other appearances adverse to his view of the cause of death; and, in my judgment, he would have acted more wisely, and more in accordance with the rules of science, had he referred the infiltration of the lungs and the vagina to post-mortem changes. The result of the inspection at that distance of time either proved nothing with regard to the cause of death, or, from the state of the heart and stomach, it proved that death could not have taken place in the manner in which the witness supposed and asserted that it did take place.

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Art. VII.—*On Some Leading Facts to be recollected in the Examination of the Fæces in Disease.* By Jonathan Osborne, M. D., King's Professor of Materia Medica, Physician to Mercer's Hospital, &c.

When we reflect that in the digestive tube, commencing at the mouth and ending at the anus, there is a continuous mucous surface of about five times the length of the individual, that is, on the average, about twenty-five feet; that of this surface no more is visible than what can be seen in the mouth and fauces; that from its not possessing that kind of sensibility which, at the surface of the body, we designate as the sense of touch, the symptoms are found not so much in the seat of these affections, as in the influence which they exercise upon other, and often the most remote, organs,—we shall be prepared to acknowledge the importance of the evidence afforded by the discharges from the stomach and bowels, and to enter on the examination of them with a due sense of its value.

The matters thrown off by vomiting afford a variety of indications respecting the state of the stomach, assisting in the diagnosis between merely sympathetic disturbance, torpidity of digestion, excessive action of the acid secreting glands, or inflammation of the mucous surface; and often enable us to determine the nature and amount of the latter, also to distinguish as to the origin of blood poured into its cavity, and frequently to obtain the earliest evidences of cancerous or other malignant disease. These matters, however, I shall now pass over, and confine my attention to the conclusions to be derived from the examination of the fæces.

The most complete chemical examination of them is that of Berzelius, which, although comparatively old in this age

of rapid advancement, yet has not been superseded by any other:

| | | |
|---|---|---|
| Water, . . . . . | | 73·3 |
| Bile, . . . . . | 0·9 | |
| Albumen, . . . . . | 0·9 | |
| Extract, . . . . . | 2·7 | 5·7 |
| Salts, . . . . . | 1·2 | |
| Insoluble Residue of Food, . . | | 7·0 |
| Mucus, Bile, Resin, Fat, &c. . . | | 14·0 |
| | | 100·0 |

A striking fact to be observed in this is, the large proportion of water, approximating to that of the urine, which, according to the same authority, amounts to 93 per cent. of that secretion.

The quantity of the entire discharge is influenced by diet, but still more by torpidity of secretion from the mucous surface, the epithelial scales at their formation containing water, which is afterwards absorbed when retained. Thus in old persons of sedentary habits, also in several animals, the fæces are hard and dry like those of the dog, and consist chiefly of bony or other indigestible materials, resembling the coprolites, or fossil fæces, which promise to throw so much light on the mode of life and internal structure of the animals to which they belonged.

The time occupied in ordinary digestion, i. e. between taking in articles of diet and their arrival at the rectum, appears to be about fourteen hours. This, in each individual, is ascertained by observations with pips of grapes or raisins, which pass down unaltered.

The number of discharges consistent with healthy digestion is much under the influence of habit, averaging from three times daily, or oftener, to once a week. As a general observation, females have the greatest tendency to retain.

In proceeding to the examination of the fæces we have three characters to guide us, which serve as fixed points from which all our observations commence. These are, 1st, the colour; 2nd, the odour; and 3rd, the consistence. The colour is acquired in the duodenum, and derived from the bile; the odour, from the glands at the cœcum; and the figure and consistence, from the colon and rectum. Thus we have three distinct sets of marks, affixed by three distinct portions of the tube, and furnishing us with a kind of alphabet, as in the electric telegraph, to inform us of the seat and nature of the disease.

1st. The Colour.—When the common duct is obstructed,

as in certain cases of jaundice, the fæces are devoid of colour, having only a grey aspect, resembling that of putty. And here it is necessary to make a careful distinction between the colour of the fæcal masses, as originally formed in the duodenum, and that of the mucous fluid discharged from the surface of the bowels. In many cases of jaundice we see fæces consisting of those white masses resembling putty, but surrounded by yellow or green liquids. In these the secretions from the surface of the intestines are, in common with the blood and urine, more or less charged with bile, but the fæcal masses themselves remain distinct, and continue as they were at first in the duodenum, free from bile, although in health they are the special vehicle for its removal from the body; and this explains a case described by Andral[a], in which he found it difficult to reconcile the fact that, along with jaundice and colourless motions, the patient yet had copious bilious vomitings. In such cases the secretions of the stomach, in common with all the other fluids of the body, may be jaundiced, and the fæces may be even partially stained by them, but their interior resists their further entrance, and they continue distinct up to the time of their expulsion. This observation is the more necessary, as such discharges are often described as bilious, and this superficial and incorrect judgment tends to throw doubt and obscurity over every part of the subject.

In the more transient cases of jaundice sufficient time may not elapse to affect the blood so as to reach the mucus of the intestines, which usually does not become stained until after the discolouration of that part of the conjunctiva which is exposed to light, and the whole discharge thus continues altogether colourless. There is another form of jaundice worthy of particular notice. In this the fæces are well and thoroughly coloured, although the skin, the blood[b], and the urine, continue highly jaundiced. Here, as the bile passes freely into the duodenum, the hepatic duct must be free, and if so, then the cause of the jaundice must exist in the pori biliarii, or in the substance of the liver itself. And this conclusion I have almost uniformly seen verified by the further history of such cases,

[a] Clinique Médicale, by Spillan, Part v. p. 937.

[b] In order to obtain the earliest indication of jaundice in the blood, the following method will be found peculiarly convenient and satisfactory. Obtain a few drops of serum from the patient, which, when bleeding is inexpedient, may always be had from a blister, however small. Diffuse it to the size of half-a-crown on a piece of white porcelain; then drop into the centre one drop of strong nitric acid: a pool is immediately formed, surrounded by a ring of white coagulated albumen, which in a few seconds assumes a beautiful bluish-green colour if bile is present.

revealing, when long protracted, either congestion or cirrhosis of the liver, or scirrhous tumours within its substance.

In health the shades of colour vary from a bright yellow, which is that of the freshest secreted bile, to a dark olive-green, which is the colour it acquires when retained in the gall-bladder. The passage of this black bile, succeeding to feelings of sadness and depression, has no doubt been the origin of the word *melancholy*. Sometimes these discharges take place during the enjoyment of ordinary health, but the individual always experiences a change in his spirits for the better,—cheerfulness and contentment succeeding at once to dejection and moroseness; and what is worthy of remark is, that this improvement in his spirits comes on, not always after the discharge, but sometimes a few hours previously: showing that it is not to the expulsion of it from the bowels, but to the discharge of it from the hepatic ducts, that this happy effect is to be ascribed.

During their stoppage in the colon the colour of the fæces changes from yellow to brown, becoming deeper and approaching more and more to that of sepia when long retained; and even the white masses belonging to jaundice, when retained there, undergo the same change, but certainly in a much less degree. From this we are enabled to judge of the relative age of accumulations in the colon, and, after the manner of geologists, to pronounce our decisions between the old formations and the later deposits.

With respect to blood in the fæces, it assumes three distinct forms: first, when effused into the stomach, and the globules, under the chemical agencies of that organ, acquire a black colour, constituting the melænous discharges passed both by vomiting and purging; second, when effused into the smaller intestines, and in smaller quantity, and mixed up with the fæces so as to impart a reddish colour, as from an addition of ochre or brick-dust, which, to the eye prepared to look for it, is very apparent, although commonly overlooked, and evidently different from any colour which can be imparted by bile. This colour is of frequent occurrence in those cases of enteritic inflammation in which ulcerations of the small intestines are usually found. The third form is when blood is effused so low down in the tube that it is not mixed with the fæces, either solid or fluid. In such cases it is almost always dark, and varies in quantity from those large discharges which have been often attended with fatal consequences, to those cases in which small portions of sanious matter are to be seen scattered through fluid fæces, but not mixed with them, as occurs in ulcerations of the colon; or lastly, to that mere sprinkling

of a few tears of blood shed over the fæcal mass, from hemorrhoidal tumours near the rectum.

The green discharges following the use of calomel in children have been too remarkable to be entirely overlooked. By Dr. Graves, and other eminent observers, they have been considered as products of irritation of the mucous surface, and not necessarily to consist of bile, as had hitherto been held; and in 1845 Dr. Golding Bird[a], from his experiments, regarded the presence of green stools to be indicative, not of a copious secretion of bile, but of a congested state of the portal system, in which blood is exuded very slowly, and in small quantities, so as to allow of the colour to be affected by the gases and secretions present in the intestines,—a state of things which he considered to differ from melæna only in this, that in the latter the effusion of blood is so copious and sudden as not to give time for this change to take place.

It must be admitted that sulphuretted hydrogen is capable of changing the colouring matter of the blood to an olive-green; and that sanguineous exudations may in this way be the source of green evacuations; but that they are not exclusively the cause of them is to be inferred, not only from the dark-green colour which the bile receives when retained in the gall-bladder, but from the experiments of Dr. Michea[b], from which, in the cases submitted to his observation, this green discharge was proved to be connected with excess of bile. As those green motions, then, may be produced from either of these causes, and in some from the coexistence of both, they offer an interesting subject of inquiry to those engaged in the treatment of diseases of children, in order to obtain tests to identify and distinguish them.

In Asiatic cholera, as is well known, the fæces cease to have either colour, odour, or consistence, being the *conjee* fluid containing albumen diffused in water, the proportion of which is generally more or less according to the quantity of fluid drank, while the epithelial scales disappear almost entirely, but subsequently re-appear, according as recovery approaches.

Although most substances taken into the stomach are decolorized in the process of digestion, yet some are to be noted as remarkable exceptions. These are, spinach, logwood, coffee, and porter, which, in this respect, resist the action of the stomach, and impart their own colour to the fæces. The black colour produced by the salts of iron may generally be explained by their action on astringent matters in the bowels;

[a] Medical Gazette. [b] Lancet, January, 1849.

but this fails when the same effect is produced in persons whose diet consists only of potatoes, milk, and animal food.

2. The odour of fæces, which of all those occurring in nature is the most disgusting, appears to have been especially intended to deter animals from feeding on their own excrements,—a practice into which some of the more ravenous species would be likely to fall. This odour is not produced by putrefaction, as is generally presumed by the vulgar, for the fæces have no alkaline re-action, and are rather acid; and to suppose putrid matter to be retained more or less every day within the system would be contrary to all analogy, which shows such to exercise a poisonous and often fatal influence. That this odour is derived from the secretions of the glands at the cœcum is proved by the fact, that the fæces do not acquire it until they have arrived at this part; that here it is at its greatest intensity; and that it diminishes in the fæces according as they proceed on their passage to the rectum.

This secretion at the cœcum is altered by various circumstances. Sometimes it acquires a pungency almost intolerable, as is observed even in cases of slight diarrhœa, when, after the more solid contents of the colon and rectum have passed, they are succeeded by dark-coloured fluid motions, consisting of fresh arrivals from the cœcum, of such overwhelming potency that even the most experienced and apathetic physicians are compelled to a speedy flight, and content themselves with describing them as "dark, bilious, and highly offensive." The most decided proof of the vital origin of this odour, and of its independence of the food taken, is afforded at the commencement of dentition in infants. The fæces, which, previously to that time, are of a merely sour and sickly odour, suddenly acquire that most abominable and peculiar odour belonging to ulceration of a bony surface, or such as comes from the ear in destructive suppuration of the labyrinth; and from this alone the practitioner may generally predict a fit of teething. On the other hand, in some of the most severe and protracted cases of enteritic fever, once the bowels have been cleared of their old contents, there is no longer any odour in the discharges; and this continues all through the fever until a favourable change takes place, when the natural odour is resumed, according as the natural functions of the parts are restored.

3. The shape and size of the fæces are derived from the large intestines. In the horse, the rabbit, the goat, the sheep, and the pig, being those animals which occur most frequently to our observation, they are moulded so as to present us with casts of the cells of the colon. In the human subject

their first shape is also derived from the cells of the colon, and they are sometimes indurated so as to resist further compression, forming in such cases fragments of various sizes, known as scybala; but, when retaining their softness, in general they are altered in their passage through the rectum, the action of the sphincters causing both elongation and curvation. Enlargement of the prostate forms a groove in the anterior, and frequently compresses them as if they had passed through a flattening mill; while in the case of internal hemorrhoidal tumours, they show, by their grooves or notches, and streaks of blood or sanies corresponding therewith, both the size and situation, and often may throw important light on the nature, of such tumours.

When the mucous membrane of the rectum is inflamed, as in dysentery, then in the height of the disease the discharges are altogether mucous, sanious, or purulent, and an abatement is usually taking place when fæcal matters are allowed to pass. But in inflammations of the colon, as long as the rectum remains unaffected, the discharges are fæculent but frequent and largely diluted with mucus, so that, from an inspection of them alone, the distinction may be made between dysentery and diarrhœa.

In irritation or inflammation of large tracts of the intestines, the discharges exhibit alterations corresponding with the amount of irritation, and in proportion as they are presented either by the whole, or only by a part of the discharge. We are also informed of the extent of surface affected. These alterations may be described under four general characteristics, as follows.

The *first* and slightest degree of irritation is indicated by discharges differing from those of health only in greater fluidity, and absence of shape or consistence. Such occurs, for example, when a healthy individual takes a saline purgative. All our ordinary purgatives act by irritation, and after the solid contents of the large intestines have been evacuated, then follow the loose motions forwarded from the cœcum and small intestines, mixed and accompanied by large quantities of mucus.

The *second* degree of irritation is indicated by discharges of a waxy consistence, of a lesser specific gravity, floating on the urine, and frequently intermixed with air bubbles. Such are rarely seen from the operation of a gentle purgative in a healthy individual, and are almost always preceded or accompanied by symptoms, more or less marked, of irritation in the intestines, such as pain, heat, or tormina.

The *third* degree of irritation is indicated by discharges of

a powder without coherence, and either diffused or lying at the bottom of the urine. The colour of it is generally pale, but varies in this respect according to the state of the biliary secretion, or the degree in which blood may have been effused. It appears to consist of minute exudations of fibrine or coagulated albumen, and constitutes most of the discharges seen in the milder cases of enteritis, and is of most common occurrence in all idiopathic fevers accompanied by white dry tongue. In whatever cases these discharges occur, they are a certain evidence not only of the existence of mucous irritation in the bowels, but of a degree of irritation requiring, even under the most favourable circumstances, some days for its removal.

The *fourth* and highest degree of irritation is denoted by discharges consisting of white shreds or tubes of fibrinous exudation. These are the products of the same kind of inflammation seen in croup, or the most violent forms of cynanche, and consist of lymph thrown out in the same way. With respect to purulent discharges from ulcerations in the small intestines, although such must occur, yet I have not been able to distinguish them, nor, according to my observations, can pus be recognised at all, unless it is unmixed, as when it comes from the lowest portions of the intestines.

As connected with the appearances belonging to this fourth degree of irritation, I wish to remind the reader that castor oil occasionally, but by no means uniformly, or even frequently, produces discharges liable to be mistaken for the above. These are white ovoid masses, in colour and consistence resembling boiled macaroni, and about the size of grapes. They have been chemically examined by Dr. Golding Bird[a], and he considers them to be a hard soap, formed by the union of the oil with some alkaline matter in the bowels.

Heterogeneous motions are of frequent occurrence. In these we see one part of the motion fluid, another solid, or one part pulverulent, another waxy or in shreds, or all the four together. Such different appearances in the one motion are the result of different degrees of irritation in distinct portions of the tube; and it is our duty, by the assistance of these indications, compared with the symptoms of the case, to ascertain the seat of the irritation. For this purpose, we have several well-established facts. Thus, in hemorrhoidal tumours or fissures, pain at or immediately after passing a motion; in inflammation of the rectum, tenesmus; in inflammation of the colon, diarrhœa; in inflammation at the cœcum, tendency to constipation, local pain at

[a] Medical Gazette, November, 1834.

that part, and more or less peritoneal inflammation supervening; and in inflammation of the small intestines, sense of fulness around the umbilicus, with sudden bursts of diarrhœa, alternating with constipation. Taking these facts in connexion with the discharges, they will be found to serve as mutual interpreters of each other.

The cases of fæcal vomiting on record appear to me to belong merely to regurgitations of matters coloured with bile from the portion of the duodenum below the biliary duct. It has never befallen me to witness any instance in which fæces having the triple character, namely, colour, odour, and consistence, have been vomited; and I have met with only one report of a case in which such an event undoubtedly took place. It is in Dr. Abercrombie's work. In it there was an ulcer of the stomach, corresponding to one of the arch of the colon; and the fully formed fæces from the colon passed directly from it into the stomach, and were rejected by vomiting. I am aware that many cases of fæcal vomiting have been mentioned, but it was recognised as such merely from colour, and in disregard of the other peculiar characters of fæces.

In conclusion, seeing that the examination of the fæces leads to practical deductions not less important than those derived from the examination of the urine, and referring to parts more immediately under the control of our medicines, I cannot refrain from expressing a hope, that the subject may yet be adequately illustrated by means of coloured engravings. The votaries of medical science who have penetrated within the cerements of the dead ought no longer to be contented with merely a surperficial acknowledgement of the importance of the subject. In prescribing for the ailments of a long and tortuous cavern, the interior of which we cannot see, we may be truly said to be groping in the dark, and we are admonished both by theory and experience to examine the secretions of those surfaces which, when correctly interpreted, serve as faithful exponents of their actual state, and are capable of furnishing the best indications for the choice of remedies.

# PART II.

## REVIEWS AND BIBLIOGRAPHICAL NOTICES.

*Traité des Maladies Vénériennes.* Par A. VIDAL (de Cassis), Chirurgien de l'Hôpital du Midi (Vénériens), &c. Avec Planches gravées et coloriées. Paris: Victor Masson. 1853. 8vo, pp. lxiii. and 552.

*Syphilitic Diseases; their Pathology, Diagnosis, and Treatment, including Experimental Researches on Inoculation, as a Differential Agent in Testing the Character of these Affections.* By JOHN C. EGAN, M.D., M.R.I.A., &c. London: Churchill, 1853. 8vo, pp. 346.

WE have devoted so much of our space, during the past year to a development of the views of the great syphilographer, Ricord, which embody an exposition of most of the disputed opinions held by modern surgeons regarding the venereal disease, that we do not feel it necessary to re-open the subject now at any length. Yet we cannot avoid noticing shortly the two most recently published volumes on Syphilis, the one by a French, and the other by an Irish, practitioner; the former based on experience acquired in the Lock Hospital in Paris, and the latter on that gained in the Lock Hospital of Dublin: for it is right we should mention that, although Dr. Egan's book has on its title-page the name of a London publisher, it is from the pen of a Dublin surgeon, and bears the imprint of a Dublin printer.

The French Academy of Medicine devoted a series of successive sittings, in the summer and autumn of last year, to a discussion on syphilis, chiefly with reference to the transmissibility of secondary symptoms, and to the prevention of the disease by means of inoculation with its virus. The conclusions arrived at by vote were, we may say, *nil*, but the warmth with which the disputed questions were discussed, and the per-

sonalities which, in the heat of debate, passed between the most eminent of the profession in Paris, invested these sittings of the Academy with unusual interest; and it was evident that whether *syphilization* was or was not effective to ward off the disease from their patients, the very word even excited for a time a *syphilomania* amongst the Parisian surgeons. The publication of the splendidly illustrated volume of M. Vidal, now before us, may be looked upon, perhaps, as the first literary fruit of the interest thus excited: we must, however, in justice to him, say, that he has not permitted any of the angry feelings of the debate to appear in his pages, for his opinions are advanced with temper, and supported by arguments free from personalities.

"Books on the venereal disease," says the author, "are almost innumerable, but nearly all of them have been more or less admittedly written with the intention of building up or of overturning a system. From them talent is not always absent, and many are remarkable for the spirited and brilliant style which they display, but the matter contained is addressed to those already masters of the subject. My intention is to write for those unlearned in the disease, and who have not much time to spare in acquiring a knowledge of it."

M. Vidal's work is divided into four parts. The first treats of those venereal affections which are termed primary; that is to say, those lesions which are in general produced upon contaminated parts, and within a short period after the exciting cause has been applied. The second,—of secondary venereal diseases; those which are ordinarily observed *after* the primary symptoms, those, in short, which succeed them. In the third are described the venereal affections of new-born children,—infantile syphilis, together with the questions of hereditary transmission, and of communication from the infant to the nurse and from the nurse to the infant. And the fourth is occupied with remarks on the prophylaxis of the venereal disease, including also observations on the regulations of medical police for its prevention.

These sections are preceded by an introduction, termed by the author preliminary remarks, in which are contained: first, an excellent and complete history of the disease,—M. Vidal taking the same view as Dr. Egan, that syphilis is not an affection of modern origin, appearing for the first time at the close of the fifteenth century, as was attempted to be proved by Astruc and his many followers, but that it existed from the remotest antiquity. Second, observations on the *syphilitic virus or poison*, the qualities of which are revealed by but a single pro-

perty, that of reproduction, "for, placed in contact with the living tissues, under certain conditions, it ordinarily gives rise to a morbid state, the result of which is its reproduction and multiplication." The question of the existence of one or of a plurality of poisons is here discussed, but this point we shall recur to when noticing Dr. Egan's book; and the modes of contagion, and of transmission of the virus, are also referred to. Third, some reflections on the causes of error in observation on the part of those who investigate the phenomena of the disease. Fourth, a review of the value to be placed on direct experiment as a means of ascertaining the truth of opinions advanced. Fifth, an account of the results arrived at by inoculation both in man and the lower animals. Sixth, a notice of syphilization, defined by M. Auzias (Turenne), the originator of the term and the practice, "to be a state of the organism in which it will no longer evolve the syphilitic virus, in consequence of a sort of saturation;"—in fact, a species of syphilitic vaccination: this subject, as we have already said, was one of those so warmly discussed on a recent occasion by the French Academy of Medicine, and the opinion of M. Vidal is consonant with the almost universal conclusion there arrived at, that syphilization is of no value either as a preventive or as a curative means. And seventh, the transmissibility of secondary symptoms: the truth of this doctrine, which, as our readers are aware, is altogether opposed to the opinion of M. Ricord, was distinctly announced by M. Vidal in an essay which he laid before the Academy, and which gave rise to the discussion already referred to; in it he supported his statements by the results of experiments, of which he gives a summary here.

In the section which treats of *primary* syphilitic affections, the author describes the various forms of blennorrhagia, as it occurs in both sexes,—preferring, with Ricord and most of the French school, this term to gonorrhœa,—reviewing most minutely the various forms under which it appears, and the symptoms, both immediate and consecutive. In the treatment of this affection he puts especially prominent the fact, that it is truly a local inflammatory affection,—an *urethritis*.

"The following is the manner," says M. Vidal, "in which I treat a blennorrhagia:—I commence always with antiphlogistics, which I graduate according to the duration and the intensity of the disease. Thus, in the greater number of cases, I prescribe at first, baths, emollient drinks, and rest. If the patient is strong and plethoric, the blennorrhagia intense and painful, with frequent erections, I use blood-letting also, generally by the application of twenty leeches to the perineum. It

sometimes happens that these means, with low diet, suffice: that is to say, the disease declines after the eighth day of their employment. If the discharge then persists, I have recourse to copaiba or cubebs, but usually to the two combined in the form of electuary,—containing two parts of the latter to one of the former, with the addition of a sufficiency of oil of peppermint; of this about two ounces should be taken every five days in divided doses." . . . "I never in the first instance employ injections, I only use them when the above means fail to check the discharge completely, and then I prescribe astringent, not caustic, injections. The following is my favourite form; it is not strictly chemical, but its practical value is undoubted; from two to four injections should be made with it in the course of the day:—Agitate in a bottle five ounces of rose water, and eight grains each of acetate of lead and of sulphate of zinc. When I use the nitrate of silver, it is in general as an astringent, in the proportion of three grains to six ounces and a half of rose water."

The author states that he has found this plan of treatment uniformly successful in his hands, both in hospital and in private practice. This we doubt not; but our readers, we know, are fully aware of the difficulty of getting patients to submit to such restrictions as it of necessity would demand; and the majority of them will therefore, we feel certain, prefer the judicious use of injections from the first, if they be not inclined to try the *abortive* plan of treatment. We must, however, tell them, that to the latter M. Vidal most decidedly objects in consequence of both its uncertainty and danger.

M. Vidal commences his description of chancre by announcing that the venereal virus produces two principal results: the first, a form of inflammation termed blennorrhagia, which has been already described; and the second, a form of ulceration termed chancre. He thus announces his belief that these two forms, as we may term them, of the venereal disease, have a unity of origin,—a view which is opposed to the experience and opinion of nearly all British surgeons, and of many of his continental brethren. We shall not reproduce his reasons or his arguments here, but content ourselves with saying, that we are not satisfied with either; indeed we think that both are fully met by M. Ricord in the analysis of his Letters contained in our volumes for last year.

The various forms and stages of chancre are clearly and well described; and we know no work in which a more complete or more faithful account of the symptoms of the venereal disease is to be found. While the author recognises and admits

the existence of several varieties of chancre, he yet asserts that all are attended with more or less *induration.*

After some excellent remarks on the complications, the diagnosis, and the prognosis, M. Vidal proceeds to speak of the treatment of chancre. Believing that the local symptoms are coincident with the constitutional poisoning, he considers the abortive treatment—the destruction of the specific ulcer by some caustic—altogether useless; he does not himself practise cauterization "until reparation has commenced in the chancre, until it has assumed the characters of a simple wound," and then merely for the purpose of repressing exuberant granulations, or of stimulating the surface when it is indolent. Here we are completely at issue with the author; we have seen in cases without number what answered to all the characters of a true Hunterian chancre yield to *free* cauterization, either with nitrate of silver or nitric acid, when employed sufficiently early, all symptoms of syphilis disappear by simple constitutional treatment, without the least ill consequence, and no secondary symptoms follow. And we differ the more with him, therefore, when we find him stating that every case, even when submitted to treatment in its very earliest stage, requires a continued use for two months of mercury: the form he recommends being similar to that prescribed by Dupuytren, namely, one pill morning and night, but containing only a fifth of a grain of corrosive sublimate, and the same quantity of the watery extract of opium. This, he says, hastens the cicatrization of the chancre, and prevents the development of secondary symptoms, or, if it does not prevent them, diminishes much their intensity. In phagedenic chancres the author agrees with all practitioners of the present day, that mercury should not be given, but that antiphlogistics, or tonics and stimulants, according to individual circumstances, must be administered internally, while the local symptoms are combated by powerful caustics, and sedative applications afterwards.

Phymosis and paraphymosis are next treated under the heading of "affections which may be regarded as complications of chancre;" and bubo, syphilitic vegetations, and mucous pustules, are considered in the fifth, sixth, and seventh chapters of this division of the work.

In the second section of the book are described the numerous affections which affect the human organism, as a consequential result of the primary symptoms of the venereal disease. M. Vidal includes them all under the denomination *consecutive*, abolishing the terms *secondary* and *tertiary* altogether, and in so doing we think he has acted most judiciously, if it were for

no other reason than, as he says, the so-called tertiary symptoms not uncommonly precede the secondary. He considers them in two chapters. The first is devoted to a general review of their characters, the date of their appearance, their determining causes, syphilitic fever, the state of the blood in persons affected constitutionally with syphilis; as to whether the virus exists in it and is inoculable; the question as to whether the same person can be affected a second time with *true* syphilis as indicated by the occurrence of consecutive symptoms; and the therapeutics of the subject, or an account of the different remedies used for its treatment, their mode of action, and effects. The second chapter treats of the several consecutive symptoms individually: affections of the skin — the syphilides; diseases of the appendages of the skin; diseases of the mucous membranes; diseases of the eyes; diseases of the testicles; diseases of the areolar tissue; diseases of the muscles, the tendons, and the aponeuroses; diseases of the bones and the periosteum; and diseases of the viscera.

We can neither select from nor attempt to analyze this portion of the volume; every page of it abounds in valuable information concerning the disease, and the various disputed questions are carefully and clearly argued, and in every instance the reasons for the conclusions arrived at distinctly stated. But his observations must be studied in their entirety; to endeavour any condensation of them would mar their value, and they are well deserving of the careful study of every student and practitioner.

M. Vidal commences his third section, in which, as we have already said, he considers the syphilitic affections of new-born children, with an account of the symptoms and pathological anatomy of the disease, when it appears in early infancy. He then enters into the controversy regarding the causation of syphilis in infancy, a point respecting which our readers know how much difference of opinion exists; we shall, therefore, give an abstract of the author's views.

"The new-born child," he says, "may be infected by the mother, the father, or the nurse." The child may derive syphilis from the *mother* in consequence of her having suffered from the disease previously to conception, or of having contracted it after conception during pregnancy. In the former case, if the virus existing in the system has not been removed, if the germ of the poison has not been destroyed, the child cannot escape. In the latter, the certainty of the infection will depend on the period of pregnancy at which the mother had contracted the disease; the nearer it occurred to the date of conception, the

more is the infant to be feared for; but it has not been proved to be safe at any date. The more active the symptoms are in the mother, the more certain will the infection of the child be, and for this reason it is most sure to follow when the syphilides or affections of the mucous membranes are present.

The influence of the *father* in transmitting the disease to his offspring is not so manifest as that of the mother; but M. Vidal thinks that it is sufficiently proven, and cites some cases in illustration. The following remarkable instance occurred lately in our own practice, and as it is one calculated, we think, to set the question at rest, we shall give it here. We were lately consulted for a case of syphilitic psoriasis in a boy aged 11, whose father was also labouring under the disease at the same time; the mother, who brought the child to us, was perfectly healthy, and free from any eruption on the skin, and stated that she never had any illness of moment. The history of the case, as narrated to us by her, and corroborated by her husband in writing, is as follows:—She is his second wife: by his first wife, who died twenty-five years ago, he had a large family of sons and daughters, who were all most healthy, and are now men and women, in the enjoyment of sound constitutions; none of them have died. After the death of his first wife, the husband contracted syphilis, which was followed in about six months, he says, by sore throat, pains in the bones, and the eruption on his skin, psoriasis—from which he still suffers. His second wife, whom he married three years after the death of the first, bore him *seven* children, all of whom were attacked shortly after birth with an eruption on the skin precisely similar, the mother states, to that on the father's person; six of the children died at an early age, in a year or two after birth, and this child, about whom we were consulted, the youngest, alone survives; in him the cutaneous eruption, when we first saw him, covered nearly the whole surface of the body, presenting the peculiar characteristics of syphilitic psoriasis, and agreeing in all its phenomena with the eruption on his father; it has now, after somewhat more than three months' *specific* treatment, nearly disappeared. This short history needs, we think, no comment; it has convinced us of the transmissibility of syphilis from the father to the child.

The influence of the *nurse* in infecting the child is more decided than that of either parent; and a syphilitic child may in its turn infect a healthy nurse. In the former case the poison is evidently transmitted through the milk, for in some cases, which, however, M. Vidal regards as doubtful, the child has been infected, although at the time no mani-

fest syphilitic symptom was apparent in the nurse, the syphilitic diathesis alone being present. Examples of the infecting of the nurse by the child whom she is suckling are of frequent occurrence, and must have occurred in the practice of most persons; yet some still deny the possibility of the contagion of syphilis in this way, and adduce instances in which such a transmission did not occur; but we agree with the author, that "such facts have merely a negative value, they cannot avail aught against positive proofs, which, on this point, are innumerable." It is these examples of the transmission of syphilis from the nurse to the child, and from the child to the nurse, which afford the strongest arguments in favour of the contagiousness of secondary symptoms, and, therefore, all those who disbelieve in *their* being contagious, of course strenuously deny the possibility of such a means of transmission of the disease.

The observations on the diagnosis, prognosis, and treatment of infantile syphilis we must pass over, merely commending them to the notice of our readers.

In the fourth and last section, M. Vidal considers the prophylaxis of the venereal disease under two heads: first, with reference to individuals; and second, with reference to the public in general—medical police; we do not find any novel views on either division of the subject to detain us.

In closing our observations on M. Vidal's work, we beg to recommend it most warmly to our readers, for we regard it as the most complete treatise, in any language, on the venereal disease; and it is, moreover, illustrated with singularly faithful and beautifully executed coloured drawings. These are six in number: the first representing, in two figures, *acute posthitis* and *chronic balano-posthitis;* the second, in three figures, several forms of *chancre;* the third, a case of *chancre in the urethra*, followed by gangrenous perforation of the bladder; the fourth, in two figures, *warty vegetations* on the prepuce, and *mucous pustules* around the anus; and the fifth and sixth, *syphilitic eruptions* on the skin. Anything more true to nature, in pathological illustration, we have never witnessed: indeed we would consider them in themselves, without the letterpress, as positively cheap for the ten francs, the extraordinary low price at which the book is published.

Although we have given precedence in our notice to the work of M. Vidal, it is not that we consider it in any respect more important than Dr. Egan's volume; we did so out of courtesy to him as being a foreigner, and because he furnishes

a more complete and extended treatise on venereal diseases than our own countryman does.

The first important question discussed by Dr. Egan is, as to how far inoculation is useful in forming a differential diagnosis in syphilitic diseases, and this, with the results arrived at by the author's experiments, instituted for the purpose of testing the accuracy of the conclusions of Ricord, is considered in the second chapter. In consequence of their great importance, and the careful manner in which the inquiry was conducted, we shall give Dr. Egan's conclusions in his own words.

"From the foregoing observations and experiments the following deductions may be drawn:—

"1stly. That the virus of gonorrhœa is different in its nature and properties from that of chancre; inoculations from the former never giving rise to a specific ulcer; while that of the latter, when inserted beneath the skin during the stage of ulceration, is generally succeeded by the characteristic pustule.

"2ndly. That abrasions of the mucous membrane are likely to ensue from the irritating quality of a gonorrhœal discharge in its early or incipient stage. That, although no appreciable effects result from the inoculation of these excoriations, still mild forms of secondary symptoms have been observed to supervene on this affection, when no other species of disease could be detected on most careful and repeated examinations. In no case, however, has the matter of gonorrhœa produced venereal ulcers.

"3rdly. That sufficient testimony has been advanced to prove that those severe constitutional affections, reported to have resulted from gonorrhœa alone, have been caused by concealed urethral chancres, and not by any peculiar virus contained in the discharge; and hence has arisen the mistake of recommending the employment of mercury for the cure of uncomplicated gonorrhœa.

"4thly. Sympathetic buboes, usually consequent on gonorrhœal inflammation, are uninoculable; although here a mild description of secondary symptoms is occasionally met with.

"5thly. Buboes, the result of absorption of the poison of a venereal ulcer, can *generally* be inoculated, provided the operation be conducted in accordance with established rules. From the failures, however, which have occurred during the course of these experiments, I am obliged to dissent from the aphorism laid down by M. Ricord, that, when applied to the diagnosis of buboes, inoculation may be considered as forming an unexceptionable and pathognomonic sign.

"6thly. The superficial non-indurated primary ulcer is sometimes inoculable, at other times not; each description of sores is occasionally followed by mild constitutional symptoms.

"7thly. That in the indurated and excavated ulcer, inoculation supplies a valuable and unerring test, the characteristic pustule being always the result of the operation.

"8thly. That the cause of failure in inoculation of the pus of phagedenic ulcers, has been probably owing to the time at which the matter was taken,—viz., at a period when the process of ulceration was rapidly advancing, whereas the most favourable opportunity would seem to be in the intermediate stage between ulceration and reparation, when the virus would appear to concentrate itself. The ulcer produced by inoculation is identical in its nature with that from which the pus is taken.

"9thly. Secondary and tertiary symptoms produce no effect upon inoculation.

"10thly. If the inoculated part be freely touched with nitrate of silver previous to the fifth day, no ill consequences are likely to ensue."

Dr. Egan next inquires as to whether venereal diseases are caused by a plurality of poisons? And after reproducing most clearly and fairly the chief arguments advanced for and against the theory, he gives as the result of his own experience, without asserting his opinion dogmatically, that he is inclined to answer the question in the affirmative.

Gonorrhœa in the male[a], the author considers under two heads: first, external or preputial,—the posthitis and balanoposthitis of the French; and second, internal or urethral. In the treatment of the latter, he recommends strict attention to be paid to its two stages—the inflammatory and the purulent, advising the specific remedies not to be employed when the former merely is present, as, from the use simply of rest and antiphlogistics, he has seen it disappear without passing into the second stage. In the purulent stage he has confidence in the efficacy of both cubebs and copaiba, whether separately or combined, but he prefers to alternate them; injections he also uses, and most correctly lays much stress on the importance of the manner in which they are employed, but he is altogether opposed to the strong caustic injections so strongly recommended by some practitioners, and he has no faith in them as an abortive treatment.

Dr. Egan next describes the diseases which succeed gonorrhœa in the male, before proceeding to speak of that affection in the female. Those he treats of are stricture, inflammation of the prostate gland, irritable bladder, epididymitis, rheumatism, and ophthalmia. Stricture, we think, should not be thus classed; that it undoubtedly very often occurs as a result of blennorrhagia cannot be disputed, but we regard it as equally indisputable that the disease is met with, and not uncommonly,

[a] Dr. Egan "employs this term, although objectionable, as being the one most familiar to English readers." We certainly prefer to use the word blennorrhagia.

in persons who have never been affected with any form of syphilis. So important an affection is, we must also say, disposed of by the author in altogether too cursory a manner, but *ten* pages of large type being allotted to its consideration.

In speaking of gonorrhœa in females Dr. Egan states it as the result of his experience, based upon the details of 112 cases which he examined with the speculum, and of which a statistical table is given, that the disease "in the female is not confined to the vagina, as was formerly supposed, but frequently extends to the uterus;" a condition which he thinks sufficient to account for the persistence of the discharge for so lengthened a period in many cases. Our readers cannot but be struck with the analogical support which this statement affords to the opinion recently expressed by Mr. Colles, in our pages[a], as to the cause of the long continuance and obstinacy of gonorrhœa in the male in many instances. The diseases described by the author as consequent on gonorrhœa in the female are ovaritis, vegetations, condylomata, and enlargement of the external labia.

In commencing the second section of his book, the author avows his belief that the different varieties of secondary and tertiary symptoms depend on the peculiar form of the primary sore; thus following up the views of Carmichael, whose classifications also he adopts, although he, at the same time, states that he "feels assured two or three other forms of primary ulcers might be added to the list;" but fears that "the practical utility of such an augmentation would be insufficient to overbalance the confusion which is inevitable to a departure from established rules." Four forms only of primary sores are therefore described, and in connexion with each are detailed the resulting secondary and tertiary symptoms, together with the necessary treatment. First, "the superficial primary ulcer:" followed by *papular* eruption; increased vascularity of throat; pains simulating rheumatism; and iritis. Second, "primary ulcer, distinguished by elevated margins, centre slightly excavated, and even without granulations:" followed by increased vascularity with a dry and granulated appearance of the throat; *pustular* eruption; painful distention of the joints; and nodes. Third, "phagedenic primary ulcer:" followed by sloughing ulceration at the back of the pharynx; *rupial* eruption; severe pains in the joints; and nodes. And fourth, "the indurated primary ulcer"—the true Hunterian chancre: followed by excavated ulcer of the tonsil; enlargement of the cervical glands;

[a] Vol. x. p. 102.

*scaly* eruption; pains in the heads and shafts of the bones; and nodes. Each form, and its secondary results, are well and carefully described by the author, and the special treatment requisite set forth, illustrative cases being constantly introduced; but, as we expect that the work will be studied by every practising surgeon, we shall refer to the book itself for details of description and therapeutical management. *Tubercular* eruptions, and caries and exfoliation of the nasal bones, are treated in a distinct chapter, as constituting "unclassified constitutional affections;" and the following are described as "affections common to all classes:" muddiness of the skin; alopecia; affections of the nails; affections of the tongue; syphilitic testicle; and bubo.

For the reason just given, we shall content ourselves with a simple enumeration of the subjects considered in the three remaining chapters: they are, "syphilis in pregnant women and infants; syphilis as contracted from nursed children;" and "general observations on the treatment of syphilitic diseases." But before we conclude, we must express our opinion that Dr. Egan's book is one in all respects worthy of praise; his views, manifestly based upon clinical experience, are throughout decidedly yet modestly expressed; and even should all his arguments not convince, they cannot fail to gain the serious attention of the reader. The style may be considered by some too ornate for a strictly professional work, yet it is otherwise unexceptionable, and possesses the special merits of clearness and condensation. The typography of the volume we notice merely to say, that the Dublin printer does in nowise discredit the London publisher, to the getting up of whose books we have so often adverted in terms of the highest admiration.

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*Clinical Reports of Ovarian and Uterine Diseases. With Commentaries.* By Robert Lee, M.D., F.R.S., &c. London: Churchill. 1853. Foolscap 8vo, pp. 340.

This work—the production of a physician eminent for his contributions to obstetric physiology, pathology, and medicine—consists of five Reports upon the principal diseases of the female generative organs in the unimpregnated state. Accompanying each Report is a collection of cases from the author's personal experience; and this constitutes the chief, if not the sole, feature of novelty or importance in the book, as nearly all the other matter is but a reprint of various essays

and papers which have been published by Dr. Lee at different times during the last twenty years, in the Cyclopædia of Practical Medicine, the Medico-Chirurgical Transactions, &c. &c. Some of these essays, though very excellent at the time of their first appearance, have of course fallen behind the present state of knowledge, and would require considerable revision and addition to give them rank amongst the writings of the year 1853, or even to adapt them to their present mode of publication.

The first Report is upon "the structure, functions, and diseases of the ovaria, and the histories of one hundred and seventy cases." The observations upon these subjects we may dismiss without further notice, as they have been long known to the profession. This Report contains also the most important practical details of all the cases of ovarian disease which have come under Dr. Lee's observation, and of which he preserved written histories. Though all these cases illustrate the *diagnosis* of ovarian disease, they cannot all be said to be examples of it, as in many instances (e. g. Cases XVII. XXXVIII. XLIX. LV. LVII. LVIII. LX. LXIX. LXXV. LXXXVI. LXXXVII. XCIII. CXL., &c.) it must be a matter of doubt whether the tumour was really ovarian or not; and in two, Cases XXXI. and LXXV., post-mortem examination showed the ovaries to be not at all implicated. We are far from wishing, however, to underrate the value of this extended series of clinical observations. Such a body of facts cannot but afford data, at all times available, for deciding many questions of great practical moment, connected with disease of these organs. In the course of the remarks appended to them, Dr. Lee takes the opportunity to denounce the "uterine sound or poker," as a "useless and dangerous instrument," whose employment, even by those accustomed to its frequent use he has never in any single instance seen to yield information, and on several occasions to have led to the commission of gross blunders. That it is a dangerous instrument,—in other words, one capable of doing much harm if incautiously or unadvisedly used,—we hold as strongly as does Dr. Lee himself; but we must differ with him when he would have us discard it as a useless instrument. We have known its introduction to have unquestionably given rise to most unpleasant consequences; but these cases presented symptoms which, in our judgment, should decidedly have forbidden its employment. The advocates of the uterine sound are in a measure to blame for this, in not sufficiently insisting upon its cautious and restricted use. Though its employment may be free from danger in such educated and skilful

hands as Dr. Simpson's, this certainly does not warrant our proclaiming it as a safe and proper instrument to be used at the discretion of every practitioner of midwifery.

This Report concludes with an analysis of 162 cases of ovariotomy[a], which the author says will "furnish data to enable us to determine whether it would not contribute equally to the interests of humanity, and the honour of British surgery, if this operation, which was facetiously termed belly-ripping by Robert Liston, were wholly abandoned." He thus indecisively speaks of the operation here, and devotes twenty pages to the table of cases, although at page 14 we find the following unqualified condemnatory statement:

"On the practice of extirpating the ovaria when diseased, it is not necessary to offer any observations, as it has been abandoned by all who have made themselves acquainted with the pathology of these organs."

These discordant statements from the same author, and in the same book, would seem very unaccountable, did we not recollect, that there was an interval of some seventeen or eighteen years between the dates when they were originally put forth. By a little care and correction the author might have avoided leaving himself open to the charge of such strange inconsistencies.

The first seventeen pages of the third Report are from an article in the Cyclopædia of Practical Medicine, upon diseases of the Fallopian tubes, malformations of the uterus, and inflammatory diseases of it when unimpregnated: then follows a short and rather caustic notice of Dr. Balbirnie's thesis, concluding with this sentence:

"Nearly half the women in Great Britain, married and unmarried, rich and poor, virtuous and vicious, have been declared by some recent writers to be afflicted with the most disgusting diseases—*engorgements*, *indurations*, *inflammations*, *ulcerations*, *erosions* of the os and cervix uteri, which can only be discovered with the speculum, and cured with caustic."

To correct these "errors, misrepresentations, and abuses," Dr. Lee presented a communication to the Royal Medical and Chirurgical Society in 1850, and which was published in the Transactions of that body. The object of this essay virtually was to produce a re-action against the abuses of the speculum, and in it the author endeavours to prove, that the cases are very few where the diagnosis could not be satisfactorily made

[a] Reprinted from the thirty-fourth volume of the Medico-Chirurgical Transactions.

out without its assistance; and secondly, that many of the diseases for whose discovery it was avowedly used had no real existence.

Now, we most heartily bestow on Dr. Lee our warmest approbation for making, as he did, a bold and decided stand against the wholesale abuse and disgraceful practices to which the uterine speculum was rendered subservient. We believe that the evil had attained around him an enormous magnitude, and that its exposure was urgently needed. But we think that Dr. Lee, in his laudable anxiety to eradicate these corruptions, committed the fault of most reformers—he went a little too far, and overstepped the "happy medium of truth." Not that we can doubt the assertions of his own experience,—as, for instance, when he says, he "never detected a small polypus within the os uteri, or hanging through it, which he had failed to detect with the finger,"—but that we are convinced the experience of most other men will be at issue with his regarding the utility of this instrument as an auxiliary means of diagnosis, and as to the frequency of ulcerative disease of the os uteri.

Let it not be supposed that, in thus dissenting from the views of Dr. Lee, we are defending or justifying his opponents in their extravagant employment of the speculum, or deviating from the sentiments we have uniformly expressed on its use in the pages of this Journal. Far from it. We merely wish to rescue the instrument from that oblivion to which, we fear, Dr. Lee's remarks tend to consign it, and to point out its true and proper position amongst medical appliances. So far back as May, 1849,—prior to Dr. Lee's paper, be it observed,—we ventured to express our strong condemnation of the employment of the speculum in unmarried females, except on the clearest grounds of its necessity, and our belief of the infrequency of this necessity. We further added our conviction, "that the cause of medical science and medical ethics would be much benefited by a monograph from some competent observer on the abuses of the speculum." Since then we have taken every opportunity to reiterate the same opinions, so satisfied were we that the unlimited extent to which the instrument was being employed could not but be morally and medically wrong. In some of Dr. Lee's remarks we entirely acquiesce, and the following passage we quote with much satisfaction:—

"In unmarried women, whatever their rank or condition of life may be, the integrity of their structure should not be destroyed with the speculum, nor their modesty wounded by an examination of any kind, without a necessity for such a proceeding being clearly shown. Even in married women who are barren, or who have had children,

it is unjustifiable, on the grounds of propriety and morality, to institute an examination of any sort, unless the symptoms warrant the supposition that the uterus is displaced, or is in a morbid condition, the nature of which cannot be determined by the symptoms alone."

The author has accumulated a vast deal of evidence from post-mortem examinations, and from his own observation, to establish the extreme rarity of uterine ulceration. He further assures us that, on the nature, diagnosis, and treatment of the "red, swollen, hypertrophied, granular states" of the os uteri, little or no information is derived from the use of the speculum. And lastly, we find him stating his "conviction, that rational constitutional treatment, and injections, sedative and astringent, will, in these morbid conditions of the os uteri, succeed ultimately in producing more successful results than escharotics."

It is an unpleasant task to attempt the decision of questions involving the credibility of the disputants, or their faculties for observation. This remark aptly applies to the matter before us. Instead, therefore, of commenting upon Dr. Lee's opinions above quoted, we shall simply imitate his example, and, in as few words as possible, state the general conclusions to which our own experience and observation lead us upon the points alluded to, and it is only by the accumulated results of individual experience that their truth must be eventually decided. First, then, we believe inflammatory and ulcerative affections of the os and cervix uteri to be tolerably frequent amongst married women. Secondly, we think that topical applications, including the use of escharotics, form an important part in the treatment of these affections; but that constitutional remedies should, at the same time, never be omitted. And, lastly, we have found the speculum of eminent utility in the diagnosis and treatment of very many lesions of the uterus and vagina. For the recognition of disease in these parts it presents this obvious and incalculable advantage,—that by its means we can call in to our aid an additional sense, otherwise, perhaps, wholly unavailable; and surely, at the present day, when physical diagnosis is so highly valued and cultivated, what stronger recommendation could be adduced in its favour? At the same time we quite agree with Dr. Lee, that in all cancerous diseases of the uterus the speculum is not only valueless, or nearly so, as an assistant to diagnosis, but is positively injurious to the patient.

This Report contains sixty-five cases intended to illustrate "disorders of the uterine functions;" but amongst them are very many wholly uninstructive narrations, destitute of point, and without practical application. In some the state of the

uterus is not stated; in very many the diagnosis is not given, nor the data on which to form it; in still more the treatment is entirely omitted, or dismissed in four or five words; whilst in only a few instances are we informed of the result of the case. To show that these representations are not unfounded, we shall quote two or three of the histories:—

"CASE I.—August 23rd, 1832. Mrs. D., aged 34, had suffered for several years from severe headach, for the relief of which leeches, blisters, setons, &c., had been employed. She had been delivered six months before, and appeared exhausted by nursing her child. For several days she had complained of pain in the back part of the head, and the muscles of the neck and extremities had been affected with spasms, which I considered hysterical; the pupils were slightly dilated; pulse 100, full and strong; tongue loaded. Believing that the symptoms did not arise from congestion of the brain, but from an opposite condition, leeches were not applied to the temples; but they were bathed with cold vinegar and water, and the headach and spasms subsided on the exhibition of a draught, with thirty drops of tincture of henbane and camphor mixture. Purgatives were afterwards employed."

"CASE V.—September 7th, 1833. Sarah C., aged 22, had long been in delicate health; had suffered much from nervous headachs, and dysmenorrhœa and profuse leucorrhœa. Looks pale and dejected, and complains of pain in the back and in the left side of the abdomen, increased by pressure between the umbilicus and ilium extending down the thigh. There is no hardness or swelling in this situation. The pain comes on in paroxysms. No blood passed with the urine; no evidence of disease in the kidneys."

"CASE VI.—October 9th, 1833. Sarah Mills, aged 20: has never menstruated. Every month she has violent pains in the head and bowels. The headach sometimes lasts for seven days, and then entirely ceases. Her person is small, and imperfectly developed. Seen with Mr. Balderston."

"CASE XXI.—February 29th, 1836. Mrs. B., aged 53, married in early life, and has never been pregnant. The cause of the sterility was not ascertained. She had suffered long from rheumatic gout and palpitation of the heart, and agonizing pains, at times spreading over the whole left side of the chest. Her history led to the belief that she had suffered from hysteria."

"CASE XXV.—April 20th, 1836. Mrs. D., aged 37; married fifteen years, and never pregnant. Menstruation perfectly regular, and without pain. During the whole period of fifteen years no symptoms had been experienced to lead to a suspicion that organic disease existed about the uterine organs, or functional disorder of any kind except the sterility. For six months before I saw this patient she had begun to suffer from fulness about the head, headach, giddiness, heavy sleep, uncomfortable dreams, and a feeling as if the

hands were larger than natural, and deprived partially of power. Leeches, purgatives, and low diet soon removed these symptoms."

Clinical histories of this description do not serve any practical purpose that we can see, as they do not tend to illustrate the diagnosis, pathology, or therapeutics of disease. In fact they are merely isolated facts, which scarcely ever admit of generalization. The series is not, however, without some valuable records, which will afford instruction, and occasionally, too, amusement, to the attentive reader.

We now come to the third Report "on fibrous tumours and polypi of the uterus, with the histories of fifty cases." Two papers by the author, in the nineteenth and thirty-third volumes of the Medico-Chirurgical Transactions, supply all the researches—except some on the history of uterine polypi, contained in this division of the work. These, as no doubt our readers are aware, were considered very admirable monographs, and especially valuable for their pathological information. The cases given in the Report are recorded more in detail, but still concisely. They are full of instruction, and their careful perusal will amply recompense the student, and even the practitioner. Cancerous diseases of the uterus form the subject of the fourth Report; the author, as before, transcribing his observations from the Cyclopædia of Practical Medicine published in 1835. This chapter is illustrated with the details of 101 cases. After relating a part of these cases, Dr. Lee remarks,—

"From these cases it will be seen that the fungoid tumour of the uterus, or cauliflower excrescence, scirrhus, carcinoma, and corroding ulcer, are merely different forms of the same malignant disease; that the morbid changes may commence in the mucous and muscular coats of the fundus and body of the uterus, though they are observed to begin most frequently in the orifice and cervix. It may be inferred, also, from these histories, that inflammation of the uterus does not give rise to cancer in any form, and that the progress of the disease to a fatal termination is never arrested by those remedies which subdue inflammation. Three of the individuals whose cases have been related were under thirty years of age, three between thirty and forty, sixteen from forty to fifty, and fourteen from fifty to sixty."

And again, at the conclusion of this Report, he states the following inferences:—

"1. That cancer may commence in the mucous, muscular, or peritoneal coats of the uterus, but most frequently in the os and cervix.

"2. That the earliest symptoms of the disease, in a large proportion of cases, were discharges of sanguineous, serous, or white-coloured fluid from the vagina, with sense of uneasiness or pain, more or less acute, within and around the pelvis.

"3. That cancerous disease of the uterus presents itself most frequently in the form of induration and ulceration of the os and cervix uteri and vagina; or ulceration without induration; or in the form of fungoid tumours, usually called cauliflower excrescences, growing from one or both of the lips, being often associated with encephaloid or colloid masses, and true scirrhus of the remaining portions of the uterus and contiguous viscera.

"4. That in no case could cancerous disease of the uterus be referred to inflammation or any mechanical cause; and that its fatal progress was never arrested by cauterizing the morbid structures through the speculum, nor any other method of treatment."

Dr. Lee's condemnation of all attempts at radical cure in cauliflower excrescence of the os uteri may be too sweeping. We must recollect it is a disease rarely seen in an early stage, when alone an operation could have a good chance of successfully extirpating it; but, notwithstanding, cases have been recorded by Boivin and Duges, Ashwell, Simpson, Montgomery, and Churchill, where, at all events, a temporary arrest of the disease, if not a complete cure, was obtained by removal of the growth and the part of cervix from which it sprang.

The fifth and last Report contains observations upon the pathology of the vagina, labia, &c., from the Cyclopædia of Practical Medicine, and an extended and valuable series of cases illustrating partial and complete closure of the vagina, prolapse of the uterus, vagina, rectum, and bladder, and diseases of the meatus urinarius, nymphæ and labia, &c. There is also a description of the nerves of the uterus, bladder, vagina, and rectum, from the author's paper in the Transactions of the Royal Society. Amongst the cases is one which, if we mistake not, appeared in the Lancet a year or two since, containing an account of an instrument removed from the vagina, and which the writer was pleased to designate "the *impaling*, or infernal uterine machine." What the instrument was, thus designated, no one for a single moment doubted. Now, this mode of treating any important question can never advance the interests of science, or promote the cause of truth, and is, therefore, much to be deprecated. The contrivance alluded to was designed to serve a beneficial purpose, and came recommended with the weight of authority; surely, then, it was entitled to full and impartial consideration. If Dr. Lee seriously disapproved of the instrument—and in our opinion it is a highly objectiona-

ble one—he would have done essential service by stating the grounds and reasons for his disapproval. This would have been the most effectual way to have exposed its defects or dangers, if the instrument is really bad in principle or dangerous in practice.

From the foregoing extracts and remarks, the reader can hardly be at any loss to form an opinion of the work before us. A reprint of the author's essays and papers, most of which were written so long ago as the year 1835, cannot surely add to his fame, or contain anything new to medical men; whilst it awakens a regret that he did not incorporate with them his subsequent experience and more matured views, or, at all events, bring his observations up to the present state of obstetric science. This, indeed, would have given the book some air of originality, and great additional attraction. Viewed simply as a collection of cases—and this is the aspect under which it should be chiefly regarded—the book is a most valuable one, and justly entitles its author to the best thanks of the profession for the industry and labour required in its compilation.

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*Some Observations on the Contamination of Water by the Poison of Lead: and its Effects on the Human Body; together with Remarks on some other Modes in which Lead may be injurious in Domestic Life.* By James Bower Harrison, M. R. C. S. L., &c., formerly Surgeon to the Ardwick and Ancoats Dispensary. London: Churchill. 1852. Foolscap 8vo, pp. 196.

This little Treatise contains an able and excellent, though concise, description of the deleterious effects observed to arise from the continued use of water holding compounds of lead in solution or suspension. Mr. Harrison has evidently bestowed considerable attention on the subject of chronic lead-poisoning, and has brought together a number of cases illustrative of the various affections observed to result from *slow* saturnine intoxication. His descriptions are exceedingly graphic, and through every page of the volume we have evidence of his diligent research and accurate habits of observation. We may allude particularly to his remarks on the *cumulative* effect of lead on the system, a considerable period of time often elapsing before any mischief becomes evident; on the apparent *elective* action of the poison—this mineral displaying its effects by choice, as it were, upon some one person from among a household or family who are placed, apparently, in parallel circumstances,—thus tending often to throw doubt and difficulty upon the diagnosis;

and on the effects of habit, as well as idiosyncrasy, in the determination of this election. He does not consider the blue discolouration of the gums as pathognomonic, but admits, however, its importance as being a very constant and generally an early symptom. Having considered the more usual effects of lead,—such as colic and paralysis, as well as the paralysis of sensibility, which sometimes occurs along with loss of motion, or even independent of it, and which was first noticed by M. Beau[a],—he makes some remarks on the occasional occurrence of deafness, but more frequently of amaurosis, temporary or permanent. Speaking of some very serious forms of encephalic derangement, he says:—

"Besides these paralytic affections, epilepsy, delirium, and coma may arise. The colic may suddenly cease, and the fearful truce be interrupted by an attack of convulsions still more terrible. There is something characteristic in the cerebral disturbance which arises from lead. It seems to partake of the wildness and uncertainty which distinguish the operation of a poison. The delirium may be gentle or fierce, and the epilepsy may pass by quick transitions into coma, which shall again alternate with excitement in a manner little explicable without a true knowledge of the cause. The symptoms are altogether less permanent and more capricious in their character than when they arise from ordinary cerebral disturbance; but a great deal of light is shed upon these affections by considering the series of morbid phenomena which have preceded them. If there have been colic or paralysis, and tearing pains or other indications of the saturnine influence, then there can be little doubt as to the nature of the malady. Yet, it is to be borne in mind, that the cerebral symptoms may be the first, and may be sudden in their invasion; but they do not pass through the regular gradations which distinguish inflammatory lesions. The period of excitement does not pass into one of prostration, but coma and excitement seem to give place to each other, and the physical force seems to be preserved in a manner which could not be maintained if the symptoms were dependent on progressive changes in the brain. Here, too, as in most other cases, the pulse will be consulted with advantage. The pulse is not accelerated by the poison of lead, and, if it be rendered rapid by convulsions, it will be found to subside again after their cessation. Nor will the pulse be found rapid at the commencement of the cerebral disturbance, as we should expect would be the case if it arose from an inflammatory derangement. Where delirium arises, it is a changeable delirium—passing from one form of disorder to another, until an abrupt attack of epilepsy or a sudden coma interrupts its progress. There is something in all this which reminds us of hysteric caprice; but we are dealing with a more fearful complaint

[a] See a Paper on Saturnine Insensibility of the Skin, in the Gazette des Hôpitaux, No. 54.

than hysteria, and the result may be a fatal catastrophe. As the various forms of disorder break in upon us unexpectedly, we are kept in alarm as to what may next arise, and we can only assure the friends of the danger and uncertainty of the complaint. The coma which succeeds the epilepsy of lead does not pass off so rapidly as the ordinary stupor which follows an epileptic fit. It may last many hours—it may continue many days. The intellect does not recover readily from the attack; and even after the patient appears to have regained his reason, he will be found for a considerable period to be still under the influence of the poison,—in a sort of sub-delirium, which requires some discrimination."

His remarks upon treatment are judicious, especially as relating to that of colic, in which affection he has found free purgation to be the most efficacious measure; and he places most reliance on the use of croton oil, especially in the more obstinate degrees of constipation. In paralysis he advocates the *cautious* administration of strychnia.

On the whole, it is a well-timed and well written book; and, as to its general style, the extract given above may be taken as a fair specimen. We are assured our readers will find in it much information, useful not only to the physiologist and practitioner, but to the medical jurist.

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*The Practical and Descriptive Anatomy of the Human Body.* By Thomas H. Ledwich, F. R. C. S. I., and Edward Ledwich, F. R. C. S. I., Lecturers on Human and Comparative Anatomy in the Original School of Medicine, Dublin. Dublin: Fannin and Co. 1852. 12mo, pp. 922.

*A Manual of Human Anatomy: Descriptive, Practical, and General.* By Robert Knox, M. D., F. R. S. E., &c. Illustrated by 250 highly finished Wood Engravings, from Drawings by Dr. Westmacott. London: Renshaw. 1853. Foolscap, 8vo, pp. 672.

If on any one branch of medical science more than another the Dublin School has gained a special character, it is for the contributions which its members have made to anatomy; not that they have advanced many new views or novel teachings as to the structure of the human body, but that they have patiently devoted themselves to the clearing up of what was before deemed obscure, and to the simplifying of a study which is the source and origin of all knowledge to both the physician and the surgeon. Harrison's Dublin Dissector has for years been the text-book

for students in all parts of the world to which the English language has reached, and still holds its ground in the face of many competitors; but its merits or its utility cannot blind us to the many excellent points in the volume just published by the Messrs. Ledwich, and which is now before us. Some may, perhaps, ask, what need is there for a new book on human anatomy, when so many modern works of admitted value already exist on this subject. To this we would reply, that there is always room for a *good* book: the greater the number of observers, the more is truth advanced.

Messrs. Ledwich's work is evidently written directly from observations made in the dissecting-room, and is, therefore, peculiarly adapted as a hand-book for the student who seeks his information in the only way in which it can be correctly obtained,—from the dead body itself. That such is the design of the authors in its publication is sufficiently apparent from the omission of those pictorial illustrations, in the form of woodcuts, which of late years have become so much the fashion in anatomical works, and which, we fear, are too often relied upon by the learner as substitutes for the personal use of the dissecting-knife. The volume is divided into six sections, which individually treat of the bones, the ligaments, the muscles, the cavities, the nerves, and the arteries, veins, and absorbents. Each of these anatomical divisions of the human body is most carefully, minutely, and exactly described in, to use the authors' own words, "a systematic, not a discursive style, thus allowing a greater amount of anatomical knowledge to be condensed" into its pages. The relations of parts are especially dwelt upon—a point, the value of which needs to our readers no comment; and this is so completely done, that to us, who have always been of the opinion that the best manuals for the dissector are those in which anatomy is taught in regions, the present volume jars less with our views than any other of a similar arrangement with which we are acquainted. Were there any part of the book to which we would feel inclined to take exception, it is to the account of the dissection of the brain. Though not directly stating that they prefer the method they adopt of dissecting the nervous centre in the common and convenient way,—from above downwards,—in using this plan for the purpose of description, the authors countenance the continuance of what, since the publication of Mr. Solly's work, must be deemed as tending to teach merely a dry list of names without reference to structure, function, or analogy. This is, however, a minor defect, which, we trust, will be remedied in a future edition. Our notice of an anatomical book must necessarily be brief; for such a work,

from its nature, admits neither of abstract, of analysis, nor of extract. We feel confident that this volume must, from its intrinsic merits, become a standard manual for the dissecting-room, and that its publication will fully sustain the already high character of Dublin as a school for the study of practical anatomy.

In placing Dr. Knox's book at the head of this notice we have no intention of drawing any invidious comparison between the two Treatises. To those who remember the practical teachings of Dr. Knox, in his dissecting-room in Edinburgh, his name will afford sufficient guarantee for the execution of his task; and we doubt not that they will be not alone pleased in renewing their acquaintance with the author, but will recommend his work to any young friends they may chance to have engaged in the study of anatomy.

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1. *Disease in Childhood; its common Causes, and Directions for its Practical Management.* By Robert Ellis, F. L. S., &c. London: G. Cox. 1852. Foolscap 8vo., pp. 288.

2. *On a New Method of Treating certain Diseases of the Cervix Uteri.* By Robert Ellis, F. L. S., &c. London: G. Cox. 1852. Pamphlet, pp. 23.

These two works, by the same author, are associated merely out of convenience. They obviously require separate examination.

1. Although Mr. Ellis' work on childhood is an exclusively popular one, we do not hesitate to give it a passing notice, as its author seems to be actuated by philanthropic motives, and lays down what we consider to be sound and just principles for the management of infancy and childhood. For exemplifying and illustrating on the large scale the effects of the many hurtful practices and influences which at present operate amongst us in the destruction of young children, Mr. Ellis has drawn largely from the Registrar-General's tables: the numerical facts thence derived, forming, as it were, the basis of his observations. The book is divided into ten chapters, the last four of which relate to the leading symptoms and domestic management of the special diseases of infancy. The directions given are not in any way designed to supersede the physician's assistance, but solely to point out to the inexperienced mother the

early indications of those complaints, and the general hygienic principles which should regulate their treatment.

In all important points the author's views accord with those so ably and so clearly put forward by Dr. Andrew Combe in his admirable "Treatise on the Physiological and Moral Management of Infancy," a work—we may in passing remark—which has done more to remove prejudice, and to correct error upon this subject, than any other that ever appeared. In a book of this kind novelty or originality is hardly to be expected, and the one before us forms no exception to the rule. We would observe, however, that Mr. Ellis speaks approvingly of *gelatine*, as an auxiliary article of food for young or delicate infants, given in addition to milk, not as a substitute for it. This our own experience confirms, and as gelatine is not usually recommended for the purpose, we shall venture to quote the author's remarks upon it:

"As regards experimental evidence of the usefulness of this material, I have little hesitation in saying, that when judiciously used as an occasional adjunct to the food, it will be found to deserve the confidence of the medical attendant and of the parent; and the experience of numerous authorities in this country and on the Continent confirms these views. The best way of giving gelatine to an infant is by adding it in small proportions to the warm and sweetened milk and water of the ordinary meal. It is most conveniently kept in the form of a jelly, made either from isinglass, prepared gelatine, or the calf's-foot, one or two spoonfuls of which may be easily melted and added to the meal. Of course neither wine (except by medical advice), nor any other flavouring, will be added to the jelly. Healthy children do not require any addition,—but it is well to know that such an addition as this is harmless."

2. The object of the second publication of Mr. Ellis is to introduce to the favourable notice of the profession the surgical application of electric heat for the cauterization of the diseased cervix uteri. The author gives us some of the results of his own experience of the use of this remedy; and the cases he relates plainly exhibit its valuable properties. He further assures us, that by this method of treatment, "intractable disease has rapidly assumed a healthy character; indurative, and even inflammatory hypertrophy, have gradually disappeared, and an amount of progressive and rapid amendment has taken place, which he has never been able to secure with the most diligent employment of ordinary escharotics." In justice to Mr. Ellis, and to our obstetric readers, we feel bound to subjoin his description of this agent, and the mode of using it; but we must altogether abstain from expressing any opinion as to its merits.

"The instrument consists essentially of two conductors of the current electricity, the lower ends of which are connected with a battery, and the upper are united by a platina wire coiled around a porcelain tube. A good-sized silver catheter, straightened out and the end cut off, forms the body of my instrument. At the upper end it was slit open and broached so as to form a socket for the porcelain cauterizer, and also to admit the internal wire to pass out. Within the silver tube a piece of stout copper wire, clothed with an insulating covering—an old elastic catheter answers every purpose—is contained, and appears at the upper extremity, where the wire is left bare for about half an inch, for the attachment of the platina wire. On connecting the lower end of this wire with one wire of the battery, and the surface of the silver tube with the other, we have a very firm, simple, and compact arrangement of the two poles. At the upper end, where the heat is to be developed, the poles are separated by a tube of porcelain, a little thicker than the ordinary stick of nitrate of silver. The object of this tube is to support the coil of platina wire intervening between the extremities of the poles, that is to say, between the end of the silver tube and that of its contained copper wire. But it fulfils a far more important purpose—it serves as a reservoir of heat, and gives, in short, to the instrument all its novelty and value in a surgical sense. About a foot of thin platina wire is made into a coil, and the one end being firmly connected to the internal copper wire, and the other to the upper end of the silver tube, the circuit is thus completed, and the electric current, in passing from the copper wire to the silver tube, heats to incandescence the platina wire through which the connexion is made, as this is coiled round the tube of porcelain (or, what answers equally well, an inch and a half of the stem of a common tobacco pipe), its heat is imparted to that, and a body of intensely heated material is thus obtained over an extent of about three-quarters of an inch in length. Immediately that the circuit is broken by removing the wire from the battery from its contact with the surface of the silver tube, the heat disappears, reappearing instantly on making contact again."

The battery power employed with the above contrivance generally consists of two Groves' batteries of four cells each. We believe that with this new agent of Mr. Ellis, the escharotic resources of surgery are fairly exhausted upon the cervix uteri. In point of strength it may be said to form the maximum extreme of the range of caustic applications that have been used for the treatment of diseases of the uterus. It is, therefore, some satisfaction to think that we have at last reached an ultimatum even in one therapeutic direction. There is, perhaps, no other organ or part of the human economy which has been subjected to the action of such a variety of caustics—potential and actual—of every kind and degree, from the solution of

nitrate of silver upwards, including, in the various gradations, iodine, sulphate of copper, nitric acid, acid nitrate of mercury, solid lunar caustic, potassa fusa, iron at a red heat, iron at a white heat, and finally, to crown all, Mr. Ellis's wire of "intense" and "self-maintained heat," "capable of producing a far deeper eschar than that of the common cautery." Surely such diverse and powerful modes of local treatment argue some unsoundness in the therapeutic principles which guide us. Furthermore, when we find the *topical* treatment of uterine ulceration holding so prominent and so exclusive a place, and consisting of such potent remedies, we feel strongly inclined to think that the doctrine of the "constitutional origin of local diseases" is too much overlooked, or neglected by practitioners, in the class of ulcers now under consideration, and that we should endeavour to heal them more through the constitution and less through the speculum.

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*The Nature, Symptoms, and Treatment of Consumption: being the Essay to which was awarded the Fothergillian Gold Medal of the Medical Society of London.* By RICHARD PAYNE COTTON, M. D., &c., Assistant-Physician to the Hospital for Consumption and Diseases of the Chest. London: Churchill. 1852. 8vo, pp. 286.

*Pulmonary Consumption and its Treatment.* By WILLOUGHBY MARSHALL BURSLEM, M. D. London: Churchill. 1852. 8vo, pp. 160.

IF to the public at large, more especially in the British islands, pulmonary consumption has proved the most fertile cause of suffering and death, and thus been justly ranked as the disease most to be dreaded by man, it has, in no less degree, afforded the most frequent theme for the medical writer, and the most anxious subject for investigation by the practical physician. It could not, then, but have resulted that much useless and effete theories as to the nature, pathology, and treatment of tubercular phthisis should have been published, to incumber our literature; while, as might equally have been expected, our knowledge on the subject was at the same time considerably advanced by the multitude of observers that were engaged in the inquiry. Yet, withal, much still remains for diligent research, and therefore medical societies both at home and abroad, year after year, propose this disease for investigation by prize essayists. As may be seen from the title of Dr. Cotton's book,

its origin has been due to this cause, the work having gained for him the Fothergillian Gold Medal of the Medical Society of London in the year 1851.

Why should it happen that a prize essay in medicine or surgery so rarely comes up to the expectation of the reader, or advances in aught the subject on which it has been written? This is a difficult question to answer satisfactorily, though very easy to offer conjectures upon: and yet so true is it that such is the case, the practised critic invariably opens prize volumes with somewhat prejudiced feelings, knowing from experience how little is in general to be gleaned from their contents either for himself or his readers, and how much chaff is to be sifted for even a small modicum of wheat. Nor can we say that Dr. Cotton's book forms any special exception to this almost universal rule; it is true we have read very many prize essays far inferior both in style and amount of information conveyed, nevertheless we have not found sufficient *matériel* therein to induce us to give it a place amongst the classical works of medical literature likely to survive our time.

The book is divided into three parts, the first of which treats of the nature, the second of the symptoms, and the third of the treatment of consumption. We shall take a short glance at each section, noticing the several points which in the perusal of the volume have attracted our attention.

Dr. Cotton's observations on the nature of the disease do not appear to us to differ much from the more recently published views on the subject, or to add anything additional worthy of special note. His definition is at least very open to objection:

> "The term phthisis is now universally and exclusively applied to a peculiar and obscure condition of the whole system, in which the healthy materials required for the growth and reparation of the body are imperfectly supplied by the process of nutrition; whilst the elements of a morbid substance, finding their way into the blood, are deposited as *tubercle* in certain internal organs—chiefly the lungs—ultimately causing their destruction and death."

The imperfect supply of the healthy materials is the result of the disease, and therefore cannot be the disease itself; and how do the elements of a morbid substance *find* their way into the blood, or where do they come from? Indeed we think that the author renders the "obscure" condition still more obscure by his definition.

The microscopical characters of tubercle have been very differently described by different observers; of these differences a short notice is given, and Dr. Cotton concludes that

the disparity in the descriptions is to be explained by "the circumstance that *tubercle is not always of the same structure:* it differs in different cases according to the *degree of phthisis* under which it is generated; and *it may differ in the same case according to the particular organ in which it is found.*" Modern observers universally admit the well-known varieties of tubercle, but this assumption of the author, as to there being numerous forms of the morbid product, is not, we think, proved even by his own arguments.

In the fourth section of the first part are some judicious observations on the curability of consumption, especially in its early stages; but we must confess that the opening paragraph, in which it is stated that "Prior to the appearance of tubercle phthisis is very frequently within the control of remedial measures," rather puzzled us to comprehend, inasmuch as our belief, confirmed, if requisite, by the author's definition given above, was, that the presence of tubercle constitutes the essence of the disease. As one of the ways in which recovery may take place in consumption, Dr. Cotton avows his belief in the possibility of the *absorption* of tubercle,—thus differing from many modern pathologists, and especially from those who view the question in the chemical light of this morbid deposit being altogether unorganizable; but he brings forward no stronger argument in support of an opinion so opposed to what we regard as a correct view than the assertion,—that he cannot doubt its occasional occurrence from having witnessed so many instances of complete recovery "after every general and physical symptom of tubercular deposition had been most unmistakeably manifested"! The author, while maintaining its extreme rarity, admits the possibility of a cure in even the last stage of phthisis, although he has never met with an unequivocal example of its occurrence. With him both our opinion and experience quite agree, as also with reference to the great power modern therapeutics have given us over phthisis in, as we would term it, *staying* the disease.

The following statement, which is deduced from 1000 observations, is given in the eighth chapter, in which the predisposing causes of consumption are treated of. It refers to the *Influence of Age*, and the latter paragraph, from tending to correct an erroneous but very common impression amongst both the profession and the public, is of especial importance, as bearing upon life assurance. It follows a Table in which the ages are given in decennial periods.

"A glance at this Table shows that the disease is most frequent between the ages of twenty and thirty,—more than 39 per cent. hav-

ing occurred within this period; that the next age most favourable to its development is from thirty to forty years; that the next to this is from ten to twenty years; and that after the age of forty its frequency gradually lessens, until, as we approach the 'threescore years and ten,' few cases present themselves. It is a prevalent idea, but obviously an incorrect one, that after having passed the meridian of life we become exempt from consumption;—the Table showing that the disease is not infrequent up to the age of sixty, and that even after that it is far from being unknown."

We have always thought that hereditary transmission has been rather overrated as a cause of phthisis, and this view is borne out by the history of the 1000 cases above referred to by the author; for from among them but "367, or rather more than one-third, were members of consumptive families; whilst in the remaining 633, or in somewhat less than two-thirds, the disease could not be shown to have proceeded from hereditary causes." Here, however, we must guard against being misunderstood; what we mean to assert is, that although children born of consumptive parents are more apt than others to be carried off by the disease, yet in the aggregate of a given number of cases of phthisis it has, in a majority of them, been generated in the system by some cause other than hereditary transmission. On this point Dr. Graves well remarks:—"I believe it often happens that a man will get consumption by confiding too much in the purity of his blood; and I have known some cases of neglected cough terminate in debility and consumption, because the patient was not apprehensive of any danger, from the circumstance that none of his ancestors ever had the slightest taint of phthisis. If a tiger from the wilds of Africa, who can boast of a line of ancestors as free from phthisis as any of us, be brought into this country, and debilitated by confinement and impure air, and a climate to which he is unaccustomed, you will frequently find that he will die phthisical. Negroes, none of whose progenitors laboured under any form of phthisis, will get consumption in Great Britain. The same occurrence takes place with respect to monkeys and other animals, who are naturally inhabitants of a climate having a striking difference in temperature from that into which they are imported"[a].

In describing the symptoms of consumption, to the consideration of which the second part of the volume is devoted, Dr. Cotton divides them into two stages or periods: the first that preceding the formation of pulmonary tubercles, and the

[a] Clinical Lectures, by Neligan, vol. ii. p. 94.

second that subsequent to their development. This arrangement differs from that of Louis, which we have always regarded as the most advantageous, both for diagnosis and treatment, and which is very generally adopted: namely, into those which are present antecedent to the softening of tubercle, and those which exist subsequent to that change. The author's classification of the symptoms is open to the objection we already made, that phthisis does not really exist until *after* tubercle has been deposited. Moreover, how can this first stage of his be diagnosed? He says:—

"Although this early period of consumption has been but little dwelt upon by medical writers, it is, I think, very often distinguishable by the presence, in a greater or less degree, of the following train of symptoms:—From some cause, for which no good reason can be assigned, there is a slow but marked diminution of bodily vigour, compelling the individual to abandon many of his accustomed pursuits: the spirits, nevertheless, are good, and not only is the idea of consumption never entertained, but any allusion to it is at once ridiculed. So general, indeed, is this hopeful condition,—this almost instinctive blindness to the real cause of distress, that in its absence, however suspicious certain symptoms appear, these may, with much probability of accuracy, be pronounced unconnected with phthisis. The complexion is, at the same time, pallid or sallow; the expression is that of care united with animation; the features are somewhat sharpened; the movements of the body are hurried and anxious; the mental condition is irritable and capricious; whilst every act betrays an effort, sometimes instinctive, and at others voluntary, to conceal the presence of disease. The appetite is uncertain, and there are frequent indications of imperfect digestion, as well as of a tendency to passive diarrhœa. The pulse is slow, small, and easily excited. The sleep is restless, unrefreshing, and occasionally attended by perspirations. Loss of weight is of invariable occurrence; sometimes the decrease is so rapid that it will attract the attention of friends; at other times it requires the periodical use of the weighing machine to detect it; the latter, perhaps, is the most usual, but I have met with examples of such rapid emaciation that several pounds have been lost within a few days."

Now we do not see how this enumeration of symptoms can distinguish consumption from ordinary dyspepsia in the male, or from common menstrual derangement in the female. Indeed we would be inclined to designate this first stage of Dr. Cotton's *as a stage before the first*, although he tells his readers in a note that it "does not correspond with the *tuberculous cachexia* so fully described by Sir James Clark; it is a more advanced condition of the disease."

In describing the characteristics of the sputa of phthisis,—

so well expressed as regards shape and form by the term *nummulated* of the older writers,—the author remarks that he has not uncommonly perceived them to possess a peculiar sickening odour, which he compares to that of a newly plastered room; the cause of this he conjectures to depend on the presence of calcareous matter, chalky particles being often visible in them. This remark is new to us, and the occasional existence of the fetor we shall not deny, although we would be loath to place any diagnostic value on its presence. He very correctly enjoins the use of the microscope in the examination of the sputa in phthisis.

Loss of weight Dr. Cotton looks upon as one of the most valuable aids to the diagnosis of the disease: it was noticed by him in every one of the thousand cases already referred to. The following observations on this point we regard as highly valuable:—

"For a long time I sought to ascertain whether there existed what might be termed a *phthisical weight;*—that is to say, whether by the weight alone, in its relation to age and height, any person might be pronounced consumptive. This was done by comparing the height, weight, and age of a number of consumptive persons, both with those in health, and those suffering with other chronic diseases; but the result showed that no value could possibly attach to such an observation. Many healthy individuals were found to weigh less than others, of the same height and age, who were in an advanced stage of phthisis; whilst in those under the influence of other diseases, every possible variety in weight was discovered. It may, I think, be concluded, that health is compatible with a great diversity of weight; and that neither consumption, nor any other disease, has any standard of weight peculiar to itself."

Another very important sign in phthisis is the change in shape which the chest undergoes, but this is of course valuable as a diagnostic mark chiefly in the advanced stages of the disease, when the symptoms and physical signs are so manifest that we do not require its aid to enable us to come to a conclusion. Moreover, in acute phthisis, the alterations described by the author do not, in our experience, take place in any marked degree; they are chiefly manifested in those individuals in whom consumption makes but slow progress. Dr. Cotton's observations on this part of the diagnosis are, on the whole, good; but we think he lays too much stress on change being discoverable in the early stages, for he might thus lead an inexperienced physician to give a wrong prognosis, based on the parietes of the chest presenting a normal appearance.

The chest-measurer, as the author calls it, meaning thereby,

we presume, the stethometer of Dr. Quain, he states to be a useful instrument for a very accurate estimation of the changes in the respiratory movements, but thinks "the practised eye and properly applied hand are capable of affording every information which is worthy of influencing the diagnosis." Our opinion of the stethometer is even less favourable than that of Dr. Cotton; for our experience of its use induces us to regard it as likely to lead to very fallacious results: indeed in the same individual, applied on the same part of the chest, we have made it indicate the most different conditions by the degree of tightness with which we held the cord attached to the machinery moving the hand on the dial; and, for the same reason, we have rarely seen two observers come to the same conclusion in any given case. We feel bound to add, that while practical experience has compelled us to distrust the stethometer altogether, the same test—the only one to be depended on in medicine—has led us to place but very little reliance on the spirometer of Mr. Hutchinson. The *fashion* of both is nearly over, and we rejoice at it, as we are inclined to think that their use has tended to diminish that careful and rigid application of auscultation and percussion, so absolutely essential, whether employed by the physician to discover the absence or presence of disease in the respiratory organs.

The third and last part of the work is, as already stated, devoted to observations on the treatment of consumption. In it we must confess that we are rather disappointed, although it may be not justly so; we expected, forsooth, that we should meet with some new means for preventing the development or checking the progress of the disease, if not for its cure; or perhaps be told of a novel appreciation of plans of treatment already known,—in either case derived from the author's experience in the splendid institution to which he has now been for some years attached. But after a careful perusal of what he has written, we cannot discover that we have gained any hints even to further our knowledge of the therapeutics of phthisis. Yet Dr. Cotton deserves credit in that his observations, more especially on this part of his subject, are well and clearly put, and are for the most part consonant with general experience, and therefore trustworthy. The first and second chapters are particularly good; in both of them, we may say, the prophylactic treatment of the disease is considered, the first being headed "Preventive Treatment," and the second "Treatment of phthisis before tubercle is deposited."

In the medical treatment of consumption, after the deposit of tubercle, Dr. Cotton considers that there are three objects to

be fulfilled—"(1) To restore the health and vigour of the body, (2) to relieve the different symptoms as they arise, and (3) to check the further progress of the local or pulmonary disease." These might, we think, be reduced to two, for the first and third demand the use of the same remedies, namely, tonics and stimulants, such as cod-liver oil, the preparations of iron and of iodine, mineral acids, vegetable bitters, &c., as enumerated by the author, for the first indication only. The third he appears to consider is fulfilled solely by counter-irritation, for it alone he notices under this division, mentioning, merely to condemn, other methods of *cure* once employed, but now almost universally discarded. It is well to let our readers hear what so strenuous an advocate for the use of local derivatives says for this plan of treatment.

"We have already noticed, not only that cutaneous diseases are seldom associated with phthisis, but that the union of the two, in the few cases where it does occur, very often mitigates the consumptive symptoms. The external use, therefore, of stimulating agents —which, in fact, produce, artificially, disease of the skin—seems to be suggested by nature herself, as a means both of arresting the deposition and checking the subsequent process of tubercular matter.

"Setons, issues, blisters, escharotics, and irritating liniments, have had their respective advocates; but although either of these may efficiently fulfil the object for which it is employed, the choice between them seems to me to be anything but unimportant. The seton is scarcely to be recommended, and the use even of issues is, in my estimation, questionable, since equal benefit may be attained by more simple means; and after either of them has been established, its discontinuance, although perhaps absolutely necessary, on account of the increasing debility of the patient, may of itself be productive of harm, owing to the cessation of the cutaneous discharge.

"The action of blisters being more easily controlled, limited and repeated vesication is an excellent mode of counter-irritation; but large and open blisters are undesirable, as they only distress and weaken the patient without being more effective than smaller ones. Blisters, however, are less adapted to those cases where the tubercular deposit is in a state of quiescence, than to those where there is morbid inflammatory action going on around it.

"In the generality of cases, nothing answers the purpose of counter-irritation so well as caustic and stimulating liniments; the eruption thus produced being easily regulated according to its effects. It is surprising, moreover, in how short a time this kind of eruptive irritation ceases to be troublesome; few persons are under the necessity of discontinuing it, whilst the majority cheerfully accustom themselves to its existence, finding how successfully it relieves many of their most urgent thoracic symptoms. In the whole treatment of phthisis nothing, I believe, surpasses in importance the

proper employment of such applications; but their full value is scarcely apparent until they have been persevered with for weeks or even months together. Of the caustic agents iodine is probably the best; it may be used in strong spirituous solution, either alone or combined with iodide of potassium, and applied as frequently as the state of the skin will permit. It is difficult to say whether the iodine acts *specifically*, or whether the benefit is wholly due to the common principle of counter-irritation; I must confess that I have employed it principally on account of its manageableness, with a hope, perhaps, but certainly not a *conviction*, of its *specific* action. Of stimulating applications it scarcely matters which is selected, so long as regard is had to the patient's convenience. Tartar emetic ointment, however, might almost be discarded, both from its unpleasant greasiness, and the soreness and annoyance of the pustules it occasions. Strong liniments of cantharides, turpentine, cajuput, ammonia, or croton oil, are far preferable; the latter is the most certain in its operation, and might, I think, supersede every other. It may be mixed with soap liniment in the proportion of from half a drachm to a drachm to the fluid ounce, and gently rubbed in at night until it produces a papular eruption; it may then be discontinued until the eruption begins to fade, when it may be re-applied; and by employing it in this way a papular *disease of the skin* can be kept up as long as may be thought desirable. It should be used with a glove or a piece of flannel, that the hand may not be inflamed; its action becomes now and then apparent at a part remote from that where it was originally applied, the head and face, for example, becoming swelled and inflamed; but from this no permanent harm can ensue, and in no other way is the liniment productive of the slightest ill effect, nor has it the least tendency to cause diarrhœa."

We have been anxious to lay these observations of Dr. Cotton before our readers, especially because our own experience is altogether opposed to the employment of counter-irritation in the treatment of consumption, even to relieve the *cough*, for which, under the second indication, the author recommends its use also. In the first place, we cannot see on what *rational* grounds the establishment of local inflammation on, or of a purulent discharge from, the surface of the chest could be expected to prevent the further deposit of tubercles in the lungs, or to promote the removal of those already deposited there, and the restoration to a healthy condition of the parts injured or destroyed by the results of their presence. And, in the second place, we know that the tubercular diathesis, on the existence of which this disease depends, is a sign of low vital power, and the effect of the employment of counter-irritants is still further debilitating. Moreover, the high nervous irritability usually so characteristic of phthisis is augmented by the pain and annoyance of local irritants; and the hectic symptoms,

which it is so important to recovery to keep in check, are, if not in the first instance sometimes developed, in all cases certainly increased thereby. For these reasons, amongst others, we have for several years back refrained from the use of counter-irritants in phthisis, and we think with much advantage to our patients. It is true that the occasional application of a blister will relieve the pains of the pleuritic inflammation attendant on the disease, but even these we have seen more effectually removed by the application of a few leeches—if the strength will bear the loss of blood, and, if not, by stupes, poultices, and epithems.

In the fourth chapter of this part, which is headed "Treatment of the Various Forms of Consumption," *acute phthisis* and *laryngeal phthisis* alone are referred to. In speaking of the treatment of the former, to which little more than a page is devoted, Dr. Cotton does not say anything of the advantages derivable from the inhalation of the steam of warm water impregnated with sedatives, such as belladonna and conium: from the use of the former we have seen excellent results; a drachm of the expressed juice of either may be added to a pint of hot water, and the steam arising therefrom inhaled twice or three times a day from an inhaler with a wide mouth-piece. With regard to the treatment of laryngeal phthisis, the author recants an opinion formerly expressed by him, and now speaks in the highest terms of the topical medication, by means of solution of nitrate of silver, as recommended by Dr. Horace Green, of New York, whose work we reviewed in the fourth volume of our present series,—which was the first notice of it, and of his novel practice, given to British and Irish physicians. Since then, Dr. Eben Watson, of Glasgow, has published the results of his experience of this local remedy in two valued papers in our pages[a]; we need not, therefore, dwell on the matter now.

In the fifth and last chapter Dr. Cotton gives "a more particular description of the chief agents employed in the treatment of consumption." The first of these which he considers is, *change of air and climate*, and on this point his observations are, for the most part, judicious; but we must protest against the following sweeping assertion,—"that it is unnecessary at any stage of consumption to seek a foreign residence, as England offers advantages equal to, and in many respects greater, than any other country." He bases this statement chiefly on the fact of the *ubiquity* of phthisis, the disease being equally as prevalent, if not more so, in those countries to which the

[a] Vols x. and xiv.

sufferers from it are usually sent. The fallacy of this argument, however, is so obvious, that we need not stop to discuss it here. In fact the author, a few pages further on, admits "the benefit which many phthisical invalids unquestionably obtain by a residence abroad," but asserts that it is attributable, in the early stages of consumption, "to the change of scene, association, and recreation, which accompany it," and, in the more advanced stages, "upon the extent to which exercise in a pure atmosphere can be safely practised." As regards the other therapeutical agents specially noticed, we cannot find that the author adds anything new to what was published some years ago, relative to their effects, in the First Report of the Hospital for Consumption, and which we reviewed in the ninth volume of our present series.

Dr. Burslem has been induced to give his volume to the profession, as we gather from his Preface, for two reasons,—to prove that the disease can be cured by the administration of emetics, and to show that in the female sex he "has found himself succed in arresting the first or dawning inroads of pulmonary consumption by directly attending to those apparently unimportant deviations in the periodical changes which occur in all healthy females." First, with reference to the cure of consumption by the continued employment of emetics, we must, as critical judges, pronounce our verdict,—that the author has not proved this case. The practice is, as all our readers know, but the revival of an old theory, or rather of a system of treatment which had long since been tried and found wanting. On the special emetic to be employed the author remarks as follows:—

"I first gave ipecacuan or zinc. On finding the depressing effects of the emetic continuing, in some cases, for many days, I stated to Mr. Twinberrow, chemist, of Edward-street, Portman-square, my wish to have some milder emetic, upon which he prepared several for me. Those that I now employ are, the essence of ipecacuan, and the essence of ipecacuan with chloric ether. Administering these preparations in the dose of about fifteen minims in a tea-spoonful of water, I directed the patient to drink some warm water; in about ten minutes, or a quarter of an hour after it was taken, vomiting took place, and, in general, it acted but once. . . . The emetics are generally repeated at first every third day; after a while every fourth, and then once a week."

Dr. Burslem's second indication of treatment is, we think, sufficiently well known and attended to by every judicious physician, and did not require the publication of a volume to

enforce its importance. It is, however, in our experience, an accompaniment of the disease which does not require any special interference beyond that requisite for the proper treatment of the disease itself.

From these few words, we think our readers can readily judge for themselves of the value of the second work placed at the head of this review, and how little its publication has done to advance our knowledge of "the most important disease human flesh is heir to."

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*A Treatise on Operative Ophthalmic Surgery.* By H. Haynes Walton, F.R.C.S. Eng.; Surgeon to the Central London Ophthalmic Hospital; and Assistant Surgeon to St. Mary's Hospital. London: Churchill. 1853. 8vo, pp. 628.

The science of medicine and surgery, necessarily progressive, has made rapid advances within our own time, keeping pace, at least in some of its branches, with those astonishing discoveries and applications of knowledge which have in many respects so changed and improved the moral and physical aspects of the world. In the several departments of our science, there have arisen zealous and careful observers, whose labours and investigations, accurately determined by the research and experience of others, have become standards, and though many of them still admit of improvement in some of their details, they respectively possess the intrinsic value of being founded and built upon truth. Thus, surgery, based upon the evidences of anatomy and the facts of pathology, has become fixed in many of its principles; its practice is usually clear and definite; and its operations comparatively safe and successful. These improvements it certainly owes to the learning and untiring research of those great men who have shed a glorious lustre upon the medical profession, and who have recorded their experience to serve as inextinguishable beacons for all time. While these observations refer to surgery in general, they are especially applicable to its ophthalmic department, for long after medicine and surgery had made, in a general point of view, very great advances, several of their special departments were overlooked, or but very imperfectly understood. Among these none, perhaps, was at a lower ebb than an accurate knowledge of the diseases of the eye; indeed, up to nearly the opening of the present century, the empiric or itinerant practitioner alone intermeddled with its complaints, and it was the *mere* oculist, often as ignorant as unprincipled, who performed operations

upon that important organ. At length, however, there was demanded from the educated surgeon a degree of attention not formerly bestowed upon the eye, and the general principles of pathology and therapeutics were necessarily brought to bear upon the elucidation and treatment of its diseases.

The science having been thus wrested from the hands of mountebanks and quacks, soon exhibited signs of wholesome vitality; and both on the Continent of Europe and in this country, institutions for the treatment of eye diseases spread over the land, until, in all the metropolitan cities and in almost every large town, such charities are to be found; while ophthalmic medicine and surgery have been recognised as an essential ingredient in the education of the accomplished surgeon. And, indeed, it is much to be regretted that the study is not demanded from all, and that special teachers are not attached to our various medical schools, for the purpose of imparting that accurate and extensive information which it is impossible to convey in the general surgical course.

Since the beginning of the nineteenth century the literary contributions descriptive of the eye and its diseases have been numerous, and many of them very valuable; its pathology has been fully illustrated, at home and abroad; its anatomy accurately described; the medical treatment of its various affections precisely pointed out; and the several operations suitable to it explained and demonstrated. Among the various contributors British and Irish surgeons have borne a distinguished part, and their writings and researches shall remain lasting monuments of their diligence and literary labours. A reference to the preceding Numbers of this Journal will show that many of these contributions to ophthalmic science have been reviewed in its pages, and that the claims of this important branch of medicine have been steadily kept in view.

We have now to introduce to the notice of our readers the latest addition to ophthalmology, in the form of "A Treatise on Operative Ophthalmic Surgery," from the pen of a London surgeon, Mr. Haynes Walton, who, although in his preface he modestly styles himself "an untried writer," is not unknown to the readers of the periodical medical publications of the day, as the author of some excellent papers upon various surgical subjects. He now comes before the profession in a goodly sized octavo, and claims their suffrages in favour of his book, regarding which he says:—"I have spared no pains in my attempt to make it of practical value, and I have laid under contribution all the literature that has come within my reach or knowledge, whether English or foreign, on the subject of oph-

thalmic pathology and surgery." A perusal of his work will certainly prove this statement; and, so far as we are enabled to judge, he has fairly availed himself of the labours of preceding authors, giving their views concisely, and honestly acknowledging the debt.

The book before us opens with an elaborate history of ophthalmic surgery, from a very distant period of antiquity down to nearly our own times; and this interesting sketch concludes with "the hope, that the slight notices which I have found it possible to exhibit within so narrow a compass will inspire the reader with the desire to extend his knowledge of those treasures of the history of our art, which the fashion of our age so systematically teaches surgeons to neglect." This observation is but too true, and the fact of this ignorance is one reason why so many writers plume themselves upon certain new discoveries, which, were they better acquainted with the history of our art, they would learn were known long before. With the final sentiment of this introductory chapter all will agree, and it coincides with the observations we have already made:

"It will at least," says our author, "be acknowledged, that in the department of ophthalmic surgery the men of to-day have no reason to be ashamed of being compared with those of the olden times. The multiplication of ophthalmic institutions in this century, during which they took their origin, distinctly shows the increased attention of modern surgeons to ophthalmic surgery; and their superior skill in this branch of the curative art may be safely inferred from their vastly increased opportunities of observation and experience."

The second chapter is devoted to the consideration of "the use of chloroform in ophthalmic surgery." Mr. Walton does not add anything new upon a subject now well tested and pretty extensively known. He is an advocate for the exhibition of that most useful drug in all operations about the eyes, save "in extraction of cataract, or where the cornea is incised to an equal extent" as in that operation. We cordially coincide with that view, and certainly would advise the administration of chloroform in all cases of operation, save those just excepted and also in the operation for strabismus in the adult, unless when we have to deal with a very excitable, timid, or sensitive patient. We lately had an excellent example of the efficacy of chloroform in permitting an operation which, without its use, seemed impracticable: the patient, a most irresolute, irritable person, had some calcareous deposit upon the capsule of the lens, particles of which had become detached and lay in the anterior

chamber, in the angle between the iris and cornea, causing intolerable and incessant pain. Removal of the foreign body was imperative; the attempt was made, but, from the patient's resistance, it failed. A few days after, while the patient was fully under the influence of chloroform, not only were these particles easily extracted, but other calcareous portions were removed from the posterior chamber, the eye remaining insensible, fixed and steady during the proceeding. In children, in the operation for squint, it is invaluable, and although its use debars us from immediately knowing if the eye be rendered straight, still that is a small drawback, when compared with the comparative ease with which the operation can be performed while the little patient is insensible to pain; and moreover, it is very easy to re-induce the anæsthetic impression, and remedy any defect, if we find that the eye does not come straight soon after the patient recovers from the influence of the chloroform. We have operated on very many children for squint when insensibility was thus produced, and we have never had any difficulty in completing the operation at what we may term the "first sitting." The following observations are much to the point:

"It is scarcely possible to overrate the value of a discovery which tranquillizes the mind of the patient by banishing the anticipation of pain, deadens the sensibility, and prevents the reality of suffering; while to the operator it brings the inestimable advantage of quieting the struggles of children or of irresolute adults, which are apt to frustrate all the care, foresight, and dexterity, that the most assiduous application to practical surgery can command."

"Chloroform," he again says, "may be administered to persons of all ages, from a few months' or weeks' old to extreme age. I have given it several times at six weeks, and once at a month old; and a medical friend reports that he has kept a child of ten weeks' old under its influence for more than half an hour, without any unpleasant result whatever."

Our experience fully confirms these statements. We lately had a child, four months old, requiring amputation of both limbs, kept under the influence of chloroform for more than an hour; the little sufferer, instead of being injured, was enabled to tolerate a shock which otherwise would likely have proved immediately fatal. We have also, without the smallest evil result, ligatured a large nævus in the upper lip of an infant three weeks old, while under that agent.

The third chapter relates to "Ophthalmic instruments in general," and some excellent observations are introduced relative to those necessary implements. We are glad to perceive that Mr. Walton is not an advocate for the almost endless variety of the ophthalmic *armentarium;* we are satisfied that a

good surgeon can operate well, even with ordinary instruments, and it is only the man that has not experience, dexterity, and confidence in himself who requires those several inventions which enrich the instrument makers, but add very little to the effectiveness of surgical operations. While we say so much, we do not wish it to be inferred that the surgeon should be careless about his instruments; on the contrary, we hold that he should be most particular to see that they are well adapted for their intended use, and that they are in as fine order as the cutler can make them.

For Mr. Walton's excellent remarks and advice regarding the kind and choice of instruments in ophthalmic practice, we must refer the reader to the work itself, where, throughout the book, he will not only find most useful hints, but see the instruments figured of their exact size.

The chapter on injuries from mechanical or chemical agents we may dismiss in a few words; for although it contains excellent suggestions, there is nothing novel in the views expressed, and little which demands special notice. There is one observation, however, with which our experience leads us to differ. The author seems to doubt the efficacy of counter-irritation in *all* ophthalmic diseases; had he intended to convey that in ophthalmitis—the subject under consideration—running on to suppuration of the globe, such applications are useless,—we would have subscribed to the doctrine; but when he says that "I have not been able to satisfy myself of the efficacy of blisters in ophthalmic diseases," &c., we must say that surely he has not given them a fair trial in the treatment of the affection which has been denominated *strumous ophthalmia*, one marked symptom of which is the great intolerance of light and lachrymation which exist, and which we have found almost invariably to be relieved by the application of a large blister to the nape of the neck. We advise him to try this remedy, and have no doubt he will change his sentiments, not, however, if he follows what appears "is the fashion at present in the metropolis, to prescribe blisters not larger than half an inch in diameter"!

We come now to examine Mr. Walton's opinion regarding the affections of the eyelids named trichiasis and entropium, those morbid changes of the lids which have given rise to such opposite opinions among surgeons with respect to the cause and remedy of the defects. In the first place, our author's definition of trichiasis is as follows:—

"Trichiasis signifies that misdirection of the cilia or eyelashes whereby their natural position is changed, and they are turned towards the globe of the eye, and touch or rest on it more or less;

thus, practically, the term is not applicable until the mal-direction has arrived at that state, and occasions some injury." And again: "Trichiasis varies in a degree from a slight deflection of some of the cilia, just sufficient to touch the globe, in one or more parts of the the lid, to the inveterate implication of all of them, except the smaller ones at the corners of the lids, which are usually exempt."

He then discusses the theory of the supposed production of an extra set or superabundant growth of cilia in this affection, or what is styled distichiasis, and arrives at the conclusion, with which we agree, that there is no fact which supports the "secondary creative theory."

"The supposed independent, or new row, is a mere deception, arising partly from the irregular though natural manner in which the cilia are placed at the edges of the lid, owing to the different planes in which their follicles lie—a fact which seems to be frequently overlooked, although noticed by the earlier anatomists,—and partly from the isolated position of those which are most internal when their extremities are turned in, or inverted from their fellows that are set more externally on the lid."

It has always appeared to us surprising that any one could imagine this extraordinary growth, how it could be, or why it should be produced. We have examined a very large number of persons affected with the disease under consideration, and could not, in any case, discover the extra number of cilia, comparing the diseased with a sound eye *in the same person*, the only possible way, we maintain, by which a fair and correct opinion can be formed; for it is obvious that if we were to compare the number of cilia to be found in the lids of one suffering from the complaint, with those in sound eyelids in another person, we would be proceeding upon very irregular principles, were we to found any argument upon such data. Let us now hear Mr. Walton's explanation of the cause of the inversion of the cilia as it constitutes the affection named trichiasis or distichiasis.

"The inversion may be but a permanent state of an accidental distortion of the cilia by some mechanical means, without any diseased condition of them whatever, of which entropium may be mentioned as an example; or the matting together of the cilia in long-continued purulent discharges from the conjunctiva, and the attendant misdirection of them is another mechanical cause,—although here it cannot always be certain that the cilia bulbs are not rendered unhealthy.

"As an idiopathic affection it is due to certain pathological changes in the lid itself, nearly all of which arise from strumous inflammation. It may not be too arbitrary to speak of idiopathic

trichiasis as occurring in two forms: in the one as a disarrangement of the lashes; in the other, disarrangement, together with imperfect development.

"I believe that the first—that is disarrangement—nearly always takes its origin in unhealthy changes in the fibro-cellular tissue in which the cilia follicles lie. There would seem to be an exception to this rule in cases where a few cilia, though emerging correctly from the lid, touch the globe, from having acquired an unnatural curvature. Thickening or other apparent disease of the lid is not a necessary accompaniment, but when the disarrangement of the cilia is very great, there is a display of it."

We very much question whether, in any case, independent of mechanical injury to the lid, or of simple entropium, even a single cilium becomes inverted, without a previous change in the hair-follicles, or the fibro-cellular tissue in which it is placed, or the margin of the cartilage upon which it rests. The history and a close examination of several cases of the simplest kind, have proved this to our satisfaction, and we have invariably found sufficient evidence of the fact; therefore we believe that all cases of trichiasis, irrespective of the exceptions we have mentioned, arise from inflammation, condensation, and consequent contraction of the tissues around the cilia, and hence we see the different mal-directions which the lashes take, some curved outwards, others turned inwards upon the globe of the eye.

With regard to the method, or methods, of cure by operation advised by Mr. Walton, we perceive that the principles are the same as those of many other surgeons, though he differs essentially in carrying them out; for instance, in cases where the cilia are merely slightly inverted, and where they are in other respects natural, it is the practice to excise an elliptical piece of the integument sufficient to evert the edge of the tarsus slightly, so as to free the globe from the inverted cilia, the skin being removed from the loose portion of the lid about an eighth, or quarter of an inch from its margin. Now the operation which Mr. Walton practises in this simple class of the disease is, to make his first incision close to the edge of the tarsus in its full length; this is joined by another curved incision, which includes the amount of integument that may be deemed sufficient, and this portion is dissected off "without interfering with the subjacent muscle;" the edges of the wound are then united by points of suture, and left to heal by the first intention. Since Mr. Walton's paper upon this subject appeared in the Medical Times, we have practised this operation in several cases, and we can speak most favourably of the result. However, we always dissect off the muscular fibres along with the

integument, and thus, we think, make a more effectual and permanent cure; indeed we cannot see on what principle the "subjacent muscle" is not interfered with; for if, as we believe, the strong muscular fibres,—*musculus ciliaris*,—situated on and near the margin of the tarsal cartilage, exercise a great influence in causing inversion of the lids, then they should surely be removed to prevent that result, as it is probable that, in every case of trichiasis affecting the entire margin of the lid, there exists such a tendency? In cases where there is partial inversion, that is, where a few, or a small bunch of cilia turn in, Mr. Walton recommends the offending cilia to be removed as follows: after the lid has been secured as he directs, he says:—

"An incision is then to be made on either side of the bunch to be taken away, long enough to reach beyond their follicles and through the skin and orbicular muscle, and a third transversely, at the very edge of the lid, falling in with the two vertical ones. The little flap is raised and intrusted to the care of an assistant, who keeps it turned up with an instrument or his finger, at the same time treating it with delicacy; directly the bleeding is checked, the mass of follicles, with the investing tissue, should be carefully hooked with the tenaculum forceps, and dissected out. The flap is then restored, and retained by three sutures, one on each edge."

We have not tried this method; we have hitherto adopted the plan recommended by Mr. Wilde, namely, that of cutting down to the follicles of the offending cilia, applying nitrate of silver to them, and then extracting the lashes with a forceps. This latter we have found very effectual, and it has the advantage of being more easily and rapidly performed. Of the more aggravated cases of trichiasis Mr. Walton speaks as follows:—

"The entire excision of the cilia is called for when there is inversion of the hairs in more than one place; when one partial excision would be insufficient; or when there is inversion to a considerable extent. The indications are to remove the cilia with as little damage as possible to the tarsal cartilage, and to leave the punctum lachrymale untouched."

Regarding the steps of the operation, he says,—the eyelids having been fixed as he directs:

"Supposing the eye to be the right, an incision is made through the skin and the muscle, at about the eighth of an inch beyond the margin of the lid, from opposite the most external cilia, at the outer angle, nearly to the punctum; the inner end is then to be held with forceps made tense, and the skin, muscle, and cilia dissected off in a vertical direction." And again:—"The edge of the cartilage and

that of the skin are brought together with accuracy by a few sutures."

This plan does not differ very materially, save in the manipulation, from that recommended by Mr. Wilde, in his paper on "Entropium and Trichiasis," which appeared in the March Number of this Journal for 1844, yet we regard it as a still greater improvement; Mr. Walton, however, further on, gives another method by which the cilia may be removed, and although we have not had an opportunity of trying the operation recommended, we are disposed to think favourably of it. The author says:

"I have lately practised an operation which I consider an improvement on this, the most usual method—that just detailed; since it saves the skin, and preserves the natural appearance of the edge of the lid. Three incisions are made,—one at each corner, and one close along the margin of the lid; the flap of skin is then raised and held back, the cilia dissected off, and a few sutures applied. It requires great caution not to allow some of the cilia to escape; and unless the tenaculum forceps are used, and the sponge is nicely employed by the assistant, so that the operator may clearly see the several steps of his course, some lashes are likely to be left behind."

The latter observations are, practically, very correct, as, in all operations for the removal of the cilia, it is most difficult to eradicate thoroughly the whole of the hair-bulbs, and, unless that be done, the object of the operation cannot be attained.

We shall now offer some remarks upon Mr. Walton's views respecting Entropium, an affection the pathology and cure of which have caused, as we have already stated, no small controversy amongst ophthalmic writers. In the several views entertained by different authors, we believe a great deal of truth may be found regarding the pathology of this disease, however much they may differ from each other. Under this impression we may be permitted to refer to some of these seemingly opposing doctrines. Putting aside the absurdities of looseness of the skin covering the lids, or a morbid attachment of the integument to the orbicular muscle as exciting causes of inversion; we may mention that the doctrines of diseased curving or shrinking of the tarsal cartilages, contraction of the conjunctiva lining the lids, and irregular muscular action, have each had ingenious advocates; and if we take a case of entropium of pretty long standing, there will not usually be any difficulty in discovering all these conditions. Therefore, one observer may suppose that the alteration in the cartilage was the first morbid change; another, seeing the palpebral portion of the conjunctiva thickened and

somewhat contracted, will consider it to have been primarily in fault; while a third, recollecting the action of the orbicularis muscle, will lay to the charge of its mal-action the entropium which exists. Thus there are really elements of truth in all these opinions; but then the proper question is, which of these changes is the primary one? We incline to the belief that conjunctival inflammation, without any material, certainly no permanent, change in that structure, calls, in certain cases,—likely where the musculus ciliaris is largely developed,—inordinate muscular action into play. Thus the margin of the tarsus becomes inverted, and a continuance of that inversion will soon produce the changes in the palpebral conjunctiva and tarsal cartilage which, by some observers, have been, individually, considered as the original morbid change. We are led to the foregoing conclusion from having frequently seen inversion of the lower lid follow slight inflammation of the eye, after the needle operation for cataract in old persons, the mal-direction of the lid invariably disappearing as soon as the inflammation was removed; and we have satisfied ourselves of the existence, in many persons, of this great development of the marginal fibres of the orbicularis palpebrarum,—those fibres implanted close upon the edge of the tarsal cartilages. We therefore agree with Mr. Walton in his pathological views of the affection, and hence have been led to adopt his operation in preference to any hitherto advised. As to the method of operating, we had better quote the author's words. He says: "Let us suppose that the right eye is to be rectified"—and here he is speaking of the operation on the upper lid—"an assistant stands behind the patient; and having made the lid tense, by drawing it outwards and raising the brow, the surgeon should make two incisions through the skin and muscle," as indicated. We may say, that the diagram shows one incision close to the margin of the lid, parallel to its edge and along its whole extent, and another curved, its centre being about a quarter of an inch up on the lid and united to the first at its ends. Then he goes on to say: "The flap thus isolated should be forcibly drawn forwards and slowly dissected, by vertical strokes of the knife, from the one side to the other, and not taken away by horizontal strokes, or else the muscular portion will not be effectually removed." And again: "Three or four sutures should be used."

This operation, which we believe to be applicable to and effective in almost every case of entropium, is founded on the pathological condition and the anatomical relations Mr. Walton points out, and has certainly a very great advantage over the old, frightful cutting up of the lid, which was formerly so

much practised. We have dwelt at some length on this subject, in consideration of its importance; and although we may differ from Mr. Walton in some of his views, we are satisfied that, in the main, his opinions are correct; and consider the entire chapter on affections of the eyelids sound and practical.

We now pass on to the chapter on strabismus or squint. In the historical notice of that operation, Mr. Walton tells us what we are sure is not generally known, namely, that an English surgeon named Taylor performed operations for squint, successfully, "more than a hundred years ago." It has usually been supposed that Dieffenbach was the first to do so; and true it is that he was the first to bring the operation, as successful, before the public; yet it is interesting to know that, more than a century since, a countryman of our own was aware of the result, and practised the operation: however, as he was a charlatan, he kept the matter, or "miracle" as it was called, secret, which doubtless attracted but little notice, and was shortly forgotten. Soon after Dieffenbach's success was known, the operation caused quite a *furore;* and all kinds of operators were at work on every conceivable kind of squint—whether likely or not to be benefited by the attempt. This soon brought the operation into disrepute, and engendered that doubt of its utility, which, even to this day, clouds the judgment of some surgeons. However, there cannot be a question but that every man of experience in ophthalmic practice—unless prejudice has caused him to abandon the proceeding—must be fully satisfied with the benefits it confers, when the operation is properly performed, and in a proper case. In our hands it has been perfectly and permanently successful in many hundreds of cases; and we may say that the permanency of the cure—the point about which persons are sceptical—is judged of from cases operated on many years since, and where the eyes still remain quite straight. Of the operation, Mr. Walton says:—

> "It may be said that it is *singularly* successful, equalling in its permanent effects that of any other operation, and surpassing most of those which are practised for the removal of deformity."

We shall not say more, under this head, than that the chapter on squint contains much practical information on what is still an interesting subject, and is worthy of an attentive perusal by the surgeon who wishes to learn the most recent investigations in connexion with it.

Of the operations for removal of opacities of the cornea, spoken of in the sixteenth chapter, we can say but little. Mr.

Bowman's case, related by Mr. Walton, certainly gives great hopes that in cases of opacity from earthy deposit on the corneal structure, an operative proceeding may be followed by very beneficial results to the patient. We believe that opacity from loss of substance rarely ensues, unless the ulcer, for instance, penetrates into the lamellated portion of the cornea, for we have, over and over again, seen the anterior elastic lamina pretty deeply ulcerated, yet the part has healed up with transparent matter, leaving no trace beyond the little dimple or indentation which marked the spot formerly diseased; but when the lamellated structure has been implicated in the ulceration, it has always seemed to us that, in the reparative process, the organized lymph soon became opaque, and left that indelible mark so often met with in persons who have suffered from severe purulent ophthalmia. In such cases, we presume, any attempt at paring off the opacity must prove fruitless; but when a deposit, as of calcareous matter, takes place in, or rather on, the anterior elastic lamina, we believe, from the reasons we have given, that the opacity may be pared off, and that the reparative process will leave the cornea transparent.

Of deposits of lymph, without any loss of substance, in the structure of the cornea, we are of opinion, with Mr. Walton, that they will often disappear, partly or entirely, by the natural action of absorption, and, of course, think that they do not admit of any operative proceeding.

The seventeenth chapter, which extends to nearly one hundred pages, is occupied by the consideration of cataract, and the operations suited to the several kinds of that most interesting of all the affections of the eye. Mr. Walton enters very fully, and, in some points, even minutely, into the question, when discussing the several views relative to this important topic, and he proves that he is not only well acquainted with the existing literature on the subject, but has himself had great experience of the disease, and has fully profited by his opportunities. Some of his opinions and suggestions we shall take the liberty of quoting, as they accord with our own sentiments, and are eminently practical. With reference to any operation for the cure of cataract, he says:—

"It is a cardinal point in ophthalmic surgery not to operate on an eye for removal of cataract, so long as it may be rendered available for ordinary purposes, whether by optical appliances or by dilatation of the pupil with belladonna. The advantage from temporarily widening the pupil is remarkable, and not less available when there is slight yet general opacity, than when the opacity is partial but denser; and that, whether the lens or capsule, or both, be involved."

He mentions instances where this dilatation was kept up, in cases of stationary cataract, for a series of years, with satisfactory results. He recommends the neutral salt of belladonna—sulphate of atropia, as the best preparation for dilating the pupil, and advises it to be used either in solution of three or four grains of the salt to an ounce of water, which is to be dropped on the conjunctiva, or in the form of an ointment made by adding one grain of the atropia to a drachm of lard or glycerine, to be rubbed upon the brows.

After enumerating the several operations, usually practised in the various kinds of cataract, and evidently leaning to extraction in every case of hard lenticular cataract, when it is at all practicable, he says:—

"The greater degree of manual dexterity demanded for this operation—extraction—than for that of displacement, which is very much easier, has induced many surgeons to assign to extraction a secondary place; but I cannot allow that such a standard should regulate the decision. Cataract is not a disease of emergency in which one is suddenly called on to operate: and I hold it to be the imperative duty of every surgeon who undertakes the practical surgery of the eye, to qualify himself for the efficient execution of those operations that are the most certain, and confer the most lasting benefits."

These are honourable sentiments that should actuate every surgeon, and their truth cannot be disputed. No man is justified in undertaking operations upon the eye, unless he has dexterity enough to perform whatever operation may be most suitable to the individual case; and when we hear any one boasting of the wonderful success that has attended in his hands the comparatively easy operation of displacement, and extolling it beyond extraction in all cases, we have always a quiet belief that such a one has no hands for any other operation. The following remarks on extraction are judicious:—

"Extraction is frequently referred to as one of the most difficult operations in surgery. While I fully admit that, for it, accurate execution, great nicety, and tact are needed (and these are within the reach of most surgeons), I do not hesitate to assert that its difficulties are greatly exaggerated.

"Putting aside those whose total want of manual tact, or great nervousness, disqualifies them for any manipulations in operative surgery, requiring delicacy,—I believe that, with proper training and practice on the dead body, any surgeon may become a successful operator. Of course there have been, and ever will be, degrees of excellence, owing to the differences of natural aptitude, and of dexterity acquired by diligent study and practice."

With the sentiment regarding the pupil we do not agree, as we have often seen the iris, when the pupil had been dilated before the operation by extraction, become engaged in the section after its completion, thus causing a displaced and less useful pupil. Mr. Walton thinks it of no consequence whether it is or is not dilated; we think it should never be dilated, and we believe we have the weight of authority and experience on our side.

The following succinct but forcible remarks are of practical value:—

"Whether a patient be sitting or lying down during the operation is of no particular moment, if he be quiet; but if likely to be restless, he ought to be placed upon his back.

"The importance of a properly regulated light is evident, and an operator will, of course, choose that which, according to the arrangement of the room, suits him best.

"It is customary to bind up the eye not to be operated on, if it have any sight; I object to the practice, because it possesses no advantage, and the formality tends to unnerve the patient.

"It is well to have all the principal articles of clothing taken off, the patient prepared to go to bed, and a morning gown put on, to prevent the inconvenience of undressing after the operation.

"I am in the habit of dividing the cornea in the upper part, preferring that section, as it possesses some advantages over the lower, such as the greater certainty in making it effectually, and the less likelihood of the flap being interfered with by the lid."

He stands behind the patient in making any section, and thus he has the advantage of being able to secure the eye himself, and a very great advantage it is, as no assistant can possibly act consentaneously with the surgeon. Of course, if the surgeon be not ambidexter, he cannot operate, as Mr. Walton advises, on the left eye, but has to stand in front of his patient, and leave the upper lid and the securing the eye to an assistant; and, as the operation may thus be very readily marred, it is the duty of every ophthalmic surgeon to endeavour to make a *dexterous* left hand, by constantly practising it.

In speaking of the operation for solution, the author pays a very just tribute to Dr. Jacob:

"There is not," says he, "perhaps any surgeon living who has paid so much attention to needle operations as Dr. Jacob, of Dublin."

And again:

"Dr. Jacob has achieved great celebrity by his operation with his peculiar needle, and he operates by solution in many cases in which most surgeons would extract; yet, in justice to this talented

man, who has contributed so largely to our knowledge of the structure of the eye, and the treatment of its diseases, I must not allow it to be supposed that he would use his needle in every case; he assigns to extraction a place, restricting its performance to hard cataract in aged persons, and stating that under fifty years of age, the crystalline lens once broken in pieces, must be sooner or later dissolved and absorbed, there being no question as to result, but only as to time."

Indeed, in the following extract from the Preface, Mr. Walton expresses his high opinion of our Irish oculists, and we feel gratified to know that a London surgeon is so well acquainted with the surgical literature of this country, and has the justice, not always exhibited, to render marked honour to those who have indisputable claims to distinction:

"No one who is at all acquainted with ophthalmic surgery is ignorant of the immense value of the profoundly scientific and eminently practical researches of Dr. Jacob, of Dublin: his writings I have studied with care.

"To Mr. Wilde, of Dublin, I must also pay my tribute of thanks and admiration; and no less to my friend Mr. Browne, of Belfast, who has greatly assisted me by many important suggestions."

Mr. Walton advocates the anterior operation for solution, and insists upon the necessity for as little disturbance of the lens as possible. This is practically correct, and, if the operation be performed as he directs, there is scarcely a chance of acute inflammation following the use of the needle.

In speaking of the sickness at stomach and vomiting that frequently result from the operation for solution, he seems to depend upon opium for quieting the disturbance. We have always found that the irritability has been speedily overcome by exhibiting drachm doses of the tincture of hyoscyamus, with thirty drops of cherry laurel water; or, in lieu of this latter, three drops of Scheele's Prussic acid, repeated every four hours until the vomiting has ceased, and we do not remember any case in which more than three or four doses were required. At the same time we either foment the eye with warm water or apply a cold lotion, in either case keeping belladonna constantly on the brows.

The five remaining chapters are taken up with the consideration of "entozoa within the eyeball," "artificial eyes," "malignant affections," "artificial pupil," and "extirpation of the eye." Upon the various practical questions ably discussed in these chapters we shall not enter; we shall only cursorily refer to the subject of artificial pupil. The operation by "incision" has certainly been greatly improved in the author's hands: the

breadth and shape of the knife he uses, and the manner in which he operates, give every chance, in suitable cases, for a successful result. His own opinion is expressed in the following terms:

"The great advantages of the operation I advocate are,—its being executed through the cornea, the certainty of being able to make the pupil at the desired spot, and the division of the iris before the aqueous humour is lost; and therefore, while it is tense, by an incision which, owing to the form of the knife, is effected with such slight pressure, that there is no risk of detachment from its natural connexions."

And again:

"To render 'incision' with the knife more generally applicable, by adapting it to cases in which the iris has not sufficient tone to contract when merely excised, I proposed, some years ago, a modification of the above operation,—namely, to divide the iris a little internal to its centre, and with a blunt hook to draw outwards the outer flap of the wound till a sufficient gap is made. An aperture is thus effected, partly by tearing, partly by stretching, and by the folding inwards of the flap of the iris. This may be denominated 'incision with extension.'"

Of course he does full justice to the various other operations still practised for the formation of artificial pupil under the many circumstances in which closure of the pupil or opacity of the cornea may be presented, and for which any operative proceedings can be undertaken.

We must now draw our review of this "Treatise on Operative Ophthalmic Surgery" to a close; we have carefully examined the book, and can consistently say that it is eminently a practical work, evincing, in its author, great research, a thorough knowledge of his subject, and an accurate and most observing mind. To the student who is anxious to know the most recent improvements in ophthalmic surgery, we can safely recommend the "Treatise," which not only gives ample information, so far as words can convey it, but also clearly illustrates, by means of admirable wood-cuts, almost every condition of the eye that may require any operation, the various improved instruments the author uses, and the steps of many of the delicate operations which are recommended and described. The illustrations, 169 in number, by Bagg, are beautiful specimens of his art,—in fact, we have seen nothing in wood engraving, explanatory of the ophthalmic department of surgery, which comes near them for accuracy of delineation or natural effect. There is one blot, however, we observed, which, although

of no practical moment, is an *artistic* defect, namely, that, in several of the cuts, the hairs of the supercilium are directed the wrong way.

Of the work, then, as a whole, we can pronounce most favourably; there are certain minor points with which we might find fault, were we so inclined: but as these may, in a great measure, be improved in a second edition, which we are confident will soon be required, we content ourselves with directing the author's notice to them, and conclude by wishing him and his literary offspring every possible success.

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*A Treatise on Tuberculosis, the Constitutional Origin of Consumption and Scrofula.* By Henry Ancell, late Surgeon to the Western General Dispensary, &c. 8vo, pp. 779. London: Longmans, 1852.

In the present day it cannot be doubted, that the reign of humoral pathology has, notwithstanding the almost exclusive devotion of pathologists to the study of the solids for the last century and a half, latterly acquired new vigour, and also that it seems destined to overturn its hitherto formidable rival. This change, however, we must admit, has been effected by the chemists and medical observers of the last few years; for although the humoral theory had been always recognised prior to the era of morbid anatomy, it had nothing for its foundation but the rude and equivocal observations of ignorance, and the vague and uncertain analogies and hypotheses of imagination or prejudice. The very ardour with which pathologists investigated the changes observable in the solids seems to have been a special cause of the revival alluded to. Special pathology had been almost exhausted. The extraordinary labours of British, French, and German anatomists had cultivated to the utmost this particular field, and hence, independently of other inducements, must have suggested to recent observers the desirability of opening up new paths in the domain of medicine. Of those who have thrown themselves into this new enterprise, our author may fairly claim to be one of the most painstaking, devoted, and successful pioneers.

About twelve years ago, Mr. Ancell published a course of lectures on the "Physiology and Pathology of the Blood," a subject at the time scarcely known to science. The microscopic observations of the cell-theorists then promulgated, taken in connexion with the chemical researches of Professor Liebig, confirmed the opinion of the primary pathological importance

of the blood, shed a new light over theoretic medicine, and rendered necessary a revision of medical doctrines. The original intention of the author was to have considered the pathology of blood-diseases generally, but we think he has wisely restricted himself to a single one, inasmuch as, if the case be well proven in a single instance, it will best facilitate the accomplishment of his original aim. The selection is also opportune, as no work in any language has hitherto regarded tuberculosis, or the primary disorder of the blood, as the proximate and essential object of theory and practice, or embraced its complete history.

"I have endeavoured," he says in his Preface, "to collect all the most important facts relating to the physical and chemical properties of the blood, the aberrations observed in the phenomena of cell-growth and nutrition, the histology of tubercular deposits, and the special pathological anatomy of the tissues and organs and have referred them to the primary affection as sequences or results. . . I have ventured to discard the idea of the predisposition being a simple proclivity to disease; and have referred all its phenomena to the disease already existing in the blood. . . . I have more especially endeavoured to discriminate between the causes of the disease of the blood, and the causes of the local disease, a distinction, as I think, of the utmost importance, yet hitherto little regarded and often overlooked."

As respects the leading principle, our author solicits the reflecting practitioner—

"To consider the entire body of facts brought forward in support of it as the development of one great question,—Is tuberculosis herein regarded consistently with the laws of organization and the physiology of man, and the nearest approach we can at present make to a knowledge of its true nature?"

With regard to the manner of treating this important and extensive subject, Mr. Ancell modestly lays claim to few pretensions. He has collected a monster host of separate facts, culled from the best authorities; he has added to these his own observations and researches; he has arranged the whole as radii around the central principle to which he, for the first time, has awarded the most important place; and if it will not tend to revolutionize theoretic medicine, there can be no question that it must conduce to a more comprehensive view of medical phenomena; it must point the way to a more perfect system,—one worthy of advancing science and the cause of human amelioration.

The contents of this work are briefly as follows: Chap. I. The nature of the tuberculous predisposition, as evidenced by

the changes of the blood and fluids, and the structural and functional characteristics. Chap. II. The signs and symptoms of tuberculosis. Chap. III. The physical and chemical characters of tubercle. Chap. IV. The morbid anatomy. Chap. V. The etiology. Chap. VI. The pathology and the theories thereon in different ages of the world. Chap. VII. A *resumè* of the forms and varieties of the disease. And Chap. VIII. The treatment.

In addition to the numerous minor suggestions, reflections, and original observations of our author, to which we shall afterwards refer while accompanying him through the different divisions of his Treatise, there are some principal points characteristic of the work, which we shall, as a preliminary, discuss.

First. Our author considers tuberculosis as an idiopathic blood disease.

Secondly. The disease is due to a primary error or defect in the blood-making process. Its so-called causes induce some unknown change in a portion of the proteiniform principle of recently formed liquor sanguinis, which deteriorates its properties, and renders it unsuitable as a material for organization. At the same time, the only principle of nutrition circulating with a diminished number of red corpuscles is in part converted into a fatty substance of a lower degree of oxidation. These principles are exuded in the blastema, and are either employed in the assimilating processes, deranging the nutrition of many of the organic structures, and giving the tuberculous or scrofulous character to various pathological processes, or in the more advanced stage of the morbid process they are deposited in particular tissues, and accumulate generally in the form of tubercle; but sometimes both as tubercle and morbid fat.

Thirdly. The disease of the blood which leads to the deposit of tubercle, and that which gives the specific character to scrofulous affections, are essentially the same.

Fourthly (Corollary). Whatever method of cure we may find available for local disease can prove of little benefit if the diseased condition of the blood be allowed to continue; whereas, if we can alter the state of the blood, the local disease not being too far advanced, may get well spontaneously.

1. That the blood is the seat of the disease may, indeed, be considered the burden of the volume. Its physical and chemical properties, and even its microscopic appearances, are elaborately detailed in evidence therein. The structural and functional characteristics of the disease show that every organ and tissue are engaged; while the signs and symptoms combine to prove its general nature. The causes, especially the fact of its

hereditary transmission, the morbid anatomy, and even the most successful mode of treatment, jointly contribute to substantiate this view. Indeed there cannot be a doubt upon the mind of any reflecting practitioner, that the blood is essentially engaged in the formation of tubercle. But our author goes further than this. For though there may be no local manifestations, not a particle of tubercular matter deposited in any organ or tissue, though the blood, lymph, or chyle, may be searched in vain for the characteristic matter, yet to the eyes of our author the tuberculosis taint is plainly manifested a long time, even a whole generation, before it becomes exemplified to the ordinary senses. He has satisfied himself that, in the advanced stages of the disease, tuberculous blood only differs from that in the earlier stages by peculiarities dependent on local complications alone. "The predisposition differs from the general disease only in degree, and the condition of the blood in the predisposition is the same, differing also only in degree." The condition of the blood in the tuberculous constitution, prior to the evidence of local disease, is, however, purely an inference, though we admit a legitimate one, as most of the chemical facts adduced pertain to the latter condition. It is certainly shown, as the combined result of the experiments brought forward, that there are certain constant characters in the blood of confirmed tuberculosis, which characters decidedly indicate a low degree of vitality. Notwithstanding these deviations from the healthy standard, may they not occur in individuals enjoying comparative health, but of a tuberculous habit? This difficulty, however, is got rid of by the assumption, that at the period when the foundation of the tuberculous habit was laid, the blood, or its embryotic analogue, must have been in a greater or less degree tuberculous.

Here, then, we may have two specimens of tuberculous blood,—the one presenting the characters of the fluid as it appears in advanced tuberculosis, which characters are tangible and fully defined, and the other presenting no appreciable deviation from the standard of health. Chemistry and the balance here fail; and we are thrown back upon analogical reasoning in order to escape from the difficulty. The tubercular matter which we meet with in phthisis or scrofula, we can physically examine to the most elaborate extent. We see that it has qualities peculiarly its own, and that it is inorganizable. We can prove that it may be absorbed and replaced by other substances. Nevertheless we can rarely find it as such in the blood itself. This, however, though seemingly an argument against its blood-origin and character, is in reality a confirmation of

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the author's view, as the fact is quite in accordance with the formation of pus, or the circumstances of carcinoma, whose blood-origin is one of the best established points in medicine.

2. The proposition laid down under the second head is a kind of defined view of the author's opinion of the pathological processes. It is, in short, a chemico-pathological theory, and certainly explains much better than any other the phenomena of the latter stages of the disease equally with the earliest. It explains well, also, how the disease may originate even in a healthy constitution, and how it may only so far contaminate the system as to give it the general marks of the tuberculous constitution for an indefinite period, without more definite manifestations. This view seems, moreover, consonant with the fact of the composition of tubercle, which, besides the true tubercular element, contains more or less of the adipose substance. This proposition seems, indeed, to hang in some measure upon the first, for when the blood, and more particularly the liquor sanguinis, becomes deteriorated from any cause whatever, this fluid is also liable to be supplied in a modified or defective state, and the character of the cytoblasts will of course vary with that of the blastema. If, therefore, it be shown that the forming constituents of the blood are vitiated, there must be aberrations of cell-development and nutrition, and *vice versâ ;* and, indeed, so far as this part of the argument is concerned, the author adopts this mode of reasoning to a considerable extent.

3. No one has ever doubted the great similarity between phthisis and scrofula; but only a few pathologists have satisfactorily affirmed their thorough identity. Our author unhesitatingly believes in it, and promulgates the strongest proof in favour of this view, based on pathological testimony. It is also established by the chemical and physical examination of the blood, the admitted characteristics of a tuberculous constitution, the signs and symptoms common to both, the fact of hereditary transmission, the anatomical elements of the local products, the characters of tubercular ulcers and their cicatrices, and their frequent coexistence. At the same time he does not hold that the condition of the blood, in any given forms or stages of scrofula and phthisis, is at the period of their occurrence identically the same, but simply that the whole of this series of maladies has its origin and essence in a pathological condition of the *same* nature, and that the predisposition, the general disease, and the local effects, have all a similar starting point in the disease of the blood. In short, he considers that the local manifestations of the disease,—its forms, duration, pro-

gress, and termination, are determined by the organ or structure affected, age, sex, hereditary transmission, and constitutional state, "at the period when any cause of local disease is applied, and especially by the periods of functional activity of different organs." On the whole, we think this view is the only one consistent with the phenomena presented, and, if generally appreciated, would greatly contribute to give more comprehensive views of the most important domain of medical science, namely, blood-diseases.

4. A moment's consideration of the principles advocated will convince the least reflecting of the curability of tuberculosis; and also of the importance of the indications, that the *general* disease should demand almost exclusive attention. On the former point our author believes that, "if the principles of rational medicine were completely and consistently carried out, they are adequate to the accomplishment of the task;" but it is absolutely necessary that the treatment, hygienic and therapeutic, should be adequate to the result proposed. This can only be done in the case of long-continued or hereditary predispositions, by such a change of the blood being effected as will insure the exudation of a healthy blastema, a change which a complete renewal of all the tissues of the body is alone competent to produce. The correctness of this view, we think, none can rightly dispute. It naturally springs from the previous pathological considerations, the only sure basis of a rational treatment, and the best security for its success.

Having thus given a brief outline of the leading views advanced by Mr. Ancell, we shall now proceed to a more particular notice of the manner in which he treats the subject in detail. The author commences by describing the physical properties of the blood in the tuberculous predisposition, as given by various observers, and as obtained by himself, and arrives at the following meagre conclusion, that "some of the characters which mark its diseased condition have been very clearly ascertained." The physical properties of venous blood, the microscopic appearances, and the chemical analysis, as observed by Dubois, Lebert, Nicholson, Phillips, Glover, Shultz, Fricke, Andral, Gavarret, Becquerel and Rodier, L'Heritier and Elsner, combine to indicate a low degree of plasticity in the liquor sanguinis, depending upon a diminution of the fibrine-producing power and a degraded condition of the fibrine itself, a low degree of integrity of the blood-discs, and a diminution of the red globules, excess of water and albumen, with defect of quality in the latter, all which qualities clearly manifest a

diminished vitality,—a view quite in harmony with all the phenomena of the tuberculous predisposition, and with the signs and symptoms of tuberculosis generally. The state of the fluids which supply the blood with the materials for its renovation, viz., the lymph and chyle, is next examined, but it leads to conclusions of doubtful import; and, although he furnishes no direct proof of the morbid condition of the blastema or the liquor nutritivus, the point does not require any elaborate proof.

On this special department of his subject we naturally looked for some *original* researches from Mr. Ancell. He candidly admits the want; "for," says he, "many of the observations recited in this section require confirmation or correction." We must confess we are therefore much disappointed, as we feel assured Mr. Ancell is fully qualified to impart very important information upon this particular inquiry, which is so congenial to his previous labours.

In the two succeeding sections, the structural and functional characters of the tuberculous predisposition are given with a view of showing that this predisposition is not a mere aptitude to be more easily affected by the causes of tuberculosis, but that it is an abnormal state of the constitution both in its solid and fluid constituents, and, in its vital power, of the same nature as tuberculosis. This point appears clearly established. He shows that the skin, the mucous membranes, the vessels, the serous membranes, the teeth, the bones, the muscles, and the very process of growth and character of features, present characteristics, more or less manifest, of the constitutional nature of the disease; while the functions of digestion, respiration, and circulation, the cutaneous, mucous, and renal secretions, and the generative and cerebral phenomena, are all more or less deeply involved through the same influence. He admits, however, that the predisposition thus characterized does not pass into actual disease, although the boundary line he thinks impossible to define. There is nothing which calls for particular remark upon the management of this part of the subject. The case is certainly well put, the facts are ably collated, but the practical conclusions have, we opine, been long acted upon by all intelligent practitioners.

The signs and symptoms of the constitutional disease, which form the subject of the second chapter, are most elaborately described. They are very properly introduced by a reference to the too common practice of waiting for physical indications, and overlooking or treating lightly the general disease.

"Hitherto," he says, "the practitioner has been too much accustomed in all cases to look for the signs of local disease as the earliest

indications, regarding the presence of these as essential for the affirmation of the presence of the general disease; and after the detection of local disease all the symptoms have been too exclusively referred to this as a cause. Hence, from first to last, the signs and symptoms of the local disease have been strangely commingled with those of the general disease; as, on a future occasion, we shall find the causes also have been.

"The existence of tuberculosis, as a general disease, has thus been overlooked or denied. In this work I think I shall show that, in many cases, it is the disease of the blood which destroys the patient, and that sometimes the local disease has comparatively little to do with the fatal event. In all cases it is a malady of the blood, characterised by its appropriate signs and symptoms, to which the local disease must be referred for the explanation of its specialty and its fatality; and the general disease of the blood may be recognised by its signs and symptoms throughout the course of every variety of tuberculous affection."

The state of the blood in the actual disease, as compared with that in the predisposition, differs but little, save in the proportion of the fibrinous element, which becomes considerably augmented. This difference, he considers, is due to the presence of some local action, such as inflammation, which occasions a relative increase. Among the diagnostics, he specially mentions anemia, which presents sufficiently marked differences from the hemorrhagic and the chlorotic forms; atrophy, as marked in the condition of the mucous membranes and the blood-vessels; direct debility of the various functions; diminution of the animal heat; and a certain degree of fever. The emaciation which is most constantly observed, and which may go on, despite a good appetite and digestion, he considers, should be ascribed to the vitiation of the blastema, and a consequent excess of the disintegrating over the integrating process. This view is certainly more consonant with the blood theory, and explains the cases where no ordinary causes of atrophy, such as fever or excessive evacuations, occur. MM. Parola and Rostan are referred to on the subject of the enlargement of the liver in incipient cases,—an interesting feature in tuberculosis as presenting some physiological analogy to what occurs in fœtal life. The observation of M. Fredericq (1851), who has described a red streak on the border of the gums, is noticed by our author, who considers it very significant, and believes that it may appear antecedent to the deposit of tubercle. Hemoptysis, though fully admitted as most frequently a consequence of tubercular aggregation, he believes may be really a symptom of the general disease, and an exciting cause of its localization.

The proof lies in the admitted atrophy of the blood-vessels generally, and in the result of repeated clinical experience.

Under the head of debility of the respiratory function, pretty full mention is made of the interesting experiments of Drs. Sibson and Hutchinson. Though but few observations have as yet been made by the former in cases of phthisis, there seems little doubt that the chest-movement indicator may yet be of positive service in enabling us to detect tuberculous cases in the absence of any evidence from auscultation or percussion. As to spirometry, we are disposed to believe, with Mr. Ancell, from experiments we have made, that there is a range of diminished breathing power short of 16 per cent., and extending frequently beyond, which is a range of uncomplicated tuberculosis. The diminished vital capacity, he is further disposed to believe, bears a direct relation to the diminished number of blood-corpuscles in the blood. This original idea is based upon the fact of the different proportion of blood-corpuscles in the blood of females as compared with that of males, which is calculated to be about 25 per cent. in favour of the latter, and is analogous to the proportion of vital capacity pertaining to the two sexes.

Mr. Ancell speaks very decidedly as to the indication of the symptom, febricula. He considers, that when it co-exists with chilliness, in a marked form, it distinctly presages the local deposit. As to its exact cause there is some doubt, and a suggestion is thrown out, whether this fever is not frequently the result of an animal compound absorbed into or produced in the blood before tubercle develops itself as a deposit so as to produce local effects.

Our author is sceptical as to the occurrence of any such case as "latent phthisis," and is disposed to believe that, in the so-called instances, the general and local signs have been overlooked. This certainly is possible; but if we are to believe the testimony of some of our first clinical observers, cases do now and again occur where the actual disease has not presented any one of the usual symptoms; and, even according to his own showing, the absolute value of the symptoms of tuberculosis in a practical point of view is comparatively little, when taken singly. Hence, practically speaking, the term "*latent*" is by no means misapplied.

The third chapter is occupied with a description of tuberculous deposits and secretions; and under this head the most interesting points appear to be, the mode of formation and development and the seat of tubercle, and its relations to the normal tissues. Mr Ancell's views are as follows: Tubercle is

composed from the tuberculous liquor or blastema, and contains at least three component elements:—1. An amorphous solid stroma, similar to fibrine, but never containing fibres. 2. Minute granules, consisting of protein compounds, fat, and calcareous salts. And 3. Imperfect cytoblasts and cells. It may be formed from the same blastema as the normal tissues, but not until the blood exudes, in addition, a combination of elements incapable of transformation into tissue. In the progress of the disease the original structure is in part replaced by the tubercle, and in part absorbed. As to its seat, it would appear that its deposition is independent of any special structure, though most generally the areolar is preferred. "Wherever the liquor sanguinis exudes, there may tubercle be met with." Seven forms in which tubercle is presented are noticed:—1. The gray granulation of Bayle. 2. The miliary tubercle. 3. The crude tubercle of Laennec. 4. The yellow granulation. 5. Tubercular infiltration. 6. The gelatinous infiltration. And 7. Tubercular dust. Regarding the identity of these varieties, our author is inclined to believe that a form of gray granulation is a pneumonic product, and that the yellow tubercle may exist independently, thus differing essentially from Laennec and his followers. All pathologists admit that tubercle has a tendency to soften, but much difference of opinion is entertained as to the mode. Mr. Ancell thinks it for the most part a mechanical and partly vital process, and that it is accelerated by inflammation.

From chemical analyses of tubercle given at length by the author, it is plain that this substance is a peculiar compound, differing from all other organic products; but as to the essential character of the liquor tuberculi, these analyses only enable us to conclude that casein is most probably an essential constituent. An important fact discovered by M. Guillot bears closely on this subject; viz., the increase of fatty matter in a tuberculous lung. Though affording much scope for hypothetical deduction, Mr. Ancell is content to leave the matter *sub judice.*

The special morbid anatomy is most elaborately given in the fourth chapter, which embraces about two hundred pages. Every structure of the body seems more or less, sooner or later, involved, and the most minute shades of tuberculous influence are faithfully portrayed; but we can only notice a few of the most interesting. Reference is made, under the head of the skin and sub-dermoid tissues, to what the French writers describe as scrofulous hospital gangrene, which in hospitals attacks ulcers at certain periods, especially those which are fistulous and connected with diseased bones and joints; but there is no

proof given that this change is peculiar in the scrofulous constitution.

While speaking of the morbid anatomy of the stomach in tuberculosis, the opportunity is taken of pointing out the independence of the local production of tubercle on the inflammatory process; as the deposit of tubercle in this organ, even when inflammatory action is indisputable, is a most rare occurrence. The account of the tubercular lesions of the remainder of the digestive tract is much enriched by repeated references to the elaborate work of Rilliet and Barthez upon infantile pathology.

In his general observations upon the tuberculosis of the skin and mucous membrane, the chronic character and intractability of scrofulous and tuberculous sores are well accounted for by the deficient and vitiated elements of the blastema. On the thoracic lesions the authors just mentioned are quoted to prove that tuberculization of pleuritic tissue may, contrary to the rule laid down by Louis, occur, independently of pre-existing pulmonary disease; and the observations of Fournet tend to show, that a similar mode of transmission from the serous membranes to the subjacent structures occasionally prevails in the intestines and brain.

The fact of tubercle being deposited in false membranes, as described by Louis and Rokitansky, is fully noticed in the account given of tubercular peritonitis, and leads to the important consideration, that, while the inflammatory exudation, at first perfectly free from tubercle, is being organized, it may supply a new exudation which shall be tubercular. The interesting associated subject of tubercular meningitis is very fully described, and some most important deductions are presented bearing directly upon practice. Thus, when there are no symptoms the deposit is usually on the convex surface; otherwise it is most frequently at the base: and cerebral tubercles, without symptoms, generally argue advanced tuberculosis.

A few instances are quoted to prove that tubercle may be formed in the blood itself,—an important fact, showing that the condition of the blood, which produces generally only a tubercular blastema, may attain such a morbid intensity as to dispense with the preliminary process of exudation.

The deposit of tubercle in the external lymphatic glands may occur independently of inflammation, which, however, always attends a certain degree of softening; and, however alarming it may occasionally appear from excessive amount, it is never fatal *per se.* The description of the engagement of the bronchial and mesenteric glands is full and varied. Tuberculosis of the brain is noticed under the forms of inflam-

mation, presenting the varieties of softening, internal hydrocephalus, tubercular masses, cretification, and occasionally œdema,—views quite in accordance with the conclusions of Dr. West upon the subject of hydrocephalus.

The anatomy of the tuberculous lung, as may be naturally expected, engages a large share of our author's attention. Although he agrees with most pathologists, that the pulmonary cells are the earliest and most frequent seats of tubercle in the lungs, he still adheres to the view formerly mentioned, and originating with Andral, that it may occur in any tissue where nutrition or secretion is carried on. Guillot and Schrœder are quoted in reference to the vascular changes in tuberculous lungs. In the progress of the disease, according to these authorities, a set of new vessels is developed from the pulmonary artery, replacing the original capillaries, and anastomosing with the branches of the bronchial arteries. This network increases with the quantity of tubercle. Were this view fully established, an important deduction, in opposition to ordinary laws, would necessarily follow, namely, that, in proportion as the tuberculization makes progress, the lungs would acquire increased capacity for arterial, and lose it for venous, blood. Rilliett and Barthez believe that the network is only associated with miliary tubercle.

Pneumonia is the most common complication of tuberculosis of the lung; it may be primary, secondary, lobular, or that peculiar form distinguished by the name of acute tuberculosis. A variety of chronic pneumonia in tuberculous subjects, and sometimes called "white hepatization," is well described, and forms an interesting feature of the pulmonary pathology. It is clearly not common pneumonia, as the texture is peculiarly hard, but a result of coexistent lymph and tubercular deposit. Though not mentioned by Mr. Ancell, this lesion seems to present some of the characters of cirrhosis of the lung. The whole subject of softening, ulceration, and formation of cavities, with the curative processes, is elaborately detailed.

The modes of spontaneous cure he enumerates are as follows:—Absorption; atrophy, in the case of miliary tubercles; cretifications, most frequent; sequestration, by means of an enveloping cyst; cicatrization, the cavity becoming fistulous; and the cavity becoming filled with a fibro-cartilaginous laminar deposit—with condensed cellular tissue—with a cretaceous substance; and, lastly, transformation of tubercle into melanotic matter.

The tubercular pathology of the lungs is concluded with a condensed view of MM. Rilliett and Barthez' excellent ob-

servations upon the lungs of tuberculous children. Miliary tubercles are in them the most common; and tubercular dust has been frequently observed. Softening is more frequent from eleven to fifteen years than previously, and prefers the right lung for its seat. The combination of pneumonia and tubercles is a most frequent occurrence; and, in fact, some degree of pneumonic inflammation appears necessarily associated with the progress of tubercle.

It has been laid down with decision by many pathologists, that there is a positive connexion between the fatty liver and tuberculosis. This opinion Mr. Ancell notices as encountering material objections from the statistics of Rilliett and Barthez, which show that the coincidence is observed only once in thirteen times. Upon the interesting question, as to the accidental or essential connexions between tuberculosis and granular kidney, no positive opinion is offered; and indeed there does not seem to be any sufficient evidence to establish the affirmative, although it is highly probable, and agreed to by most modern pathologists.

A remarkable circumstance, connected with tubercle in bone, is noticed,—namely, its frequent occurrence as the sole site of the deposit, even in adults. The changes in joints, consequent upon tuberculosis, are very fully described, and the authorities, Lebert and Brodie, are largely quoted. According to the former, nearly 80 per cent. of the cases of scrofulous disease of the articulations engage the *lower* extremities. The opinion of M. Pigeaux, respecting the cause of the *curving in of the nails*, observable in a majority of cases of phthisis, is referred to: he concludes, that it appears to depend chiefly on an œdematous infiltration of the pulp of the fingers, by which the nail becomes mechanically forced outwards and forwards, and thus its end is curved round. He considers it one of the earliest signs, and, as such, useful in diagnosis.

The account of the morbid anatomy is appropriately wound up with a condensed *resumè*, exhibiting the following best established general facts on the comparative tubercular lesions in children and adults:—

"1. Tubercles occur in other organs, without there being any in the lungs, much more frequently in children than in adults. 2. They are deposited in a greater number of organs in the same individual. 3. The organs most frequently affected are not the same in children as adults. The occurrence of tubercles in the glands generally, and in the bronchial glands in particular, in the nervous centres, the spleen, and the liver, is much more frequent in children. 4. Gray granulations and crude miliary tubercles exist alone more

frequently in children than in adults. 5. Tubercles are frequently in an advanced stage of development, with softening and suppuration, in the bronchial glands and other organs, being still in a crude state in the lungs, which rarely occurs in the adult. 6. The form of yellow infiltration is much more frequent. 7. The transition from gray transparent granulation to crude yellow tubercle takes place much more quickly (Papavoine). 8. The products and signs of inflammation of the parenchyma of the lungs, and of the bronchial tubes, are more frequently met with, and, when met with, are more generally diffused. Disseminated lobular pneumonia occurs to a greater extent in children, and most frequently explains the rapidity of the fatal result. 9. Cavities are much less frequent in children than in adults; the tubercles in the former remaining at the period of death in a state of crudity. 10. *Vacuoles*, or very small cavities, produced by the softening of small tubercles, sometimes very numerous, are peculiar to the lungs of children. 11. A fatty condition of the liver is a rare occurrence in very young infants. 12. The older children are, the less marked as a whole are the above distinctions, and the more closely the pathological appearances resemble those which are observed in the adult. 13. The local development of tuberculosis in children, particularly while very young, resembles the local development as it occurs in the acute much more closely than in the chronic tuberculosis of adults."

Chapter v., occupying 180 pages, is taken up with the subject of etiology, and forms, perhaps, the most interesting portion of the work. Here, as usual, the details are most elaborate, and every agency which is calculated to induce to any extent the tuberculous constitution or its local manifestation, receives appropriate mention. To a few of the more salient points we can only now refer.

The fact of hereditary transmission is shown to rest upon indisputable evidence. Transmission by the *milk* of a tuberculous nurse is admitted, not merely as a fact in a general sense, but exclusively as a sole cause. Yet, strange to say, in the same sentence in which he records this opinion, he affirms it to be almost essential that the hygienic circumstances under which the child is placed should be unfavourable. The question, however, is one as yet resting upon no other evidence than impressions from experience. A large number of pathologists, among whom are the highest authorities in the literature of tuberculous diseases, admit the closest dependence of scrofula upon *the syphilitic poison*. This doctrine is briefly combated by Mr. Ancell, as being founded upon individual observations unsupported by any sufficient statistical data. At the same time he admits, that syphilis may act as a predisposing cause.

An important law, respecting the influence of *age*, is rea-

dily deducible from the vital statistics arranged in Table XIX., that the mortality decreases uninterruptedly after the age of twenty-five; and, from similar statistics, he is led to state, as a most probable result, that the susceptibility of the blood to the tuberculous transformation is greatest at the earliest periods of infancy, and diminishes progressively as age advances. Among other causes of the predisposition, he notices the influence of continued *fever*, during which the vitality of the blood is liable to be for a long time diminished. But, as we know that a good convalescence has frequently renewed a patient's health, and snatched him from impending tuberculous disease, we are inclined to believe that, when its local manifestations supervene upon a febrile attack, such must have occurred in a previously tainted constitution.

A considerable space is occupied with the consideration of the important agency of *atmospheric vitiation*, a subject to which M. Baudelocque has devoted so much attention, but not more than the subject demands. Indeed some writers go so far as to state their unqualified belief in the capability of this single cause to produce the disease. This view has been warmly disputed by Lebert, Phillips, and others. Mr. Ancell is also among the opponents, and is of opinion, that anything which retards the pulmonary circulation, and diminishes the force and frequency of the respiratory movements, may produce the disease in an individual breathing the purest atmosphere. On the subject of the *alimentary ingesta*, our author believes that even the simple deprivation of the breast-milk frequently lays the foundation for the tuberculous modification of the blood. The influence of *spirituous liquors*, in producing tuberculosis, is, contrary to usual belief, denied. Indeed alcohol may excite local disease, or aggravate it when it exists in tuberculous subjects, but the moderate excitation produced by the continual presence of a small proportion of alcohol in the blood, he is inclined to believe, may, under certain favourable circumstances, act rather as a prophylactic against the general disease. Great stress is laid upon deficiency of *exercise* in bringing on a tuberculous state, and the forcible observations of Mr. Carmichael and Dr. Guy are adduced in proof. On the disputed question whether bronchitis is ever a direct cause of consumption, Mr. Ancell expresses his opinion, that the pathological facts "are conclusive, not only that it has no direct relation to the disease of the blood as cause and effect, but that it has also very little effect as an exciting cause of the deposit of tubercle." A similar view is held as to the relation of pneumonia. Influenza, he considers, acts occasionally as an exciting cause of local disease

in tuberculous habits, but there is no sufficient reason to regard it as a true and direct cause of the disease.

By some authorities in all ages, and at the present time within the tropics, the doctrine of *contagion* as regards pulmonary consumption was and is recognised. Even Laennec admitted its occasional occurrence, and Andral does not decide. The tuberculous theory of our author induces him to distrust the views of the contagionists, and coincide with the greater number of modern pathologists. At the same time, if ever communicated, he adds, it can only be "as an exceptional case, where the closest communication has taken place, and that generally for a long period."

The subject of *combined agencies* in reference to constitutional effects on the blood, and organic structures, is very forcibly shown in connexion with tuberculosis, as it occurs in different tribes of animals:—

"If there is difficulty in determining the fact of the production of tuberculosis, under particular influences regarded singly, there is none when we view several of these influences in combination, and here, especially, there is no occasion for any new or direct experiments. Unhappily, man, in his condition of civilization, affords illustrations on the largest scale. It is civilized man *par excellence* who is mowed down, and his years cut short by tuberculosis; and it is the habits, customs, and institutions of civilization which are especially conducive to its production.

"This is amply illustrated in an analysis of the facts already detailed, and by those which follow; but at the same time the remark is due here, that it can in no sense be regarded as a necessary result of civilization. It is incidental to the present transition stage—to the *period of progress;* and every philanthropist will rejoice in the reflection that the faculties of man are fully adequate, by moral and physical improvement, not only to abate those evils which he has himself created, but that, under the Christian dispensation, by the progress of human knowledge, he may hope to succeed in totally eradicating this curse."

There is strong reason for believing that the tubercular predisposition is induced, to a certain extent, by *prison discipline,* arising from a combination of injurious influences. As an example, it is stated that in a period of eighteen years, in the Millbank Penitentiary, where these causes prevailed, nearly half the deaths, and half the pardons, on medical grounds, were due to tubercular disease. The experience of MM. Rilliett and Barthez would show, that too long *residence in hospitals* tends, at least in the case of children, in like manner to the production of the disease. We believe, however, that in the instance of hospitals, the tendency might be reduced to an in-

nocuous minimum by proper attention to site, and mode of construction of the buildings.

Statistics are wanting to show the precise influence of *occupation* in the production of tuberculosis; but, imperfect as they are, Mr. Ancell thinks them sufficient to establish the predisposing agency of indoor employments, especially when combined with deficient exercise.

Phillips' view of *factory labour* is endorsed with little modification by our author, who believes that "the occupation and habits of the poor in former times, before our factory system sprung up, and at the present time in localities where factories do not exist, are, under many circumstances, much better calculated to produce the disease, than factory labour." The subject of *climate*, in relation to the prevalence of tuberculosis, is fully discussed, with the following general result:—

"There are absolutely no facts to establish that climate alone is adequate to the production of the disease; at the same time a total negation of the influence of climate is totally unwarranted. In the case of man and animals, transported from one climate to another, where, as a general fact, tuberculosis results, they have always been subjected to one or more anti-hygienic inflences in addition to the change. Nevertheless, the facts very unequivocally establish that climate materially modifies the effect of these influences. Change of climate in most cases necessarily involves change of hygiene, which may be for the better or worse as respects the production of tuberculosis. The prevalence of the disease amongst the natives, compared with their modes of life and occupations, must therefore be the great criterion of the influence of particular climates."

And, in another part, he expounds his views thus:—

"In fact, the statistics lead to one general conclusion,—viz., that as respects the etiology, the habits and customs of mankind ride over all climatic influences; that if the European inhabitants of Calcutta or Alexandria were to adopt the modes of life pursued in the metropolis of the British Empire, tuberculosis would, after a period, be as frequent in these localities as it is here; and conversely, if the inhabitants of the densely populated countries of Europe were to improve their habits and customs as to labour and rest,—indoor and outdoor occupation; the size, construction, modes of ventilation, and sites of their houses, streets, and towns; with other circumstances of hygiene, after a sufficient period had elapsed for hereditary influence to wear itself out, they would probably be more free from this disease than the inhabitants either of Lapland, Canada, Greenland, India, Egypt, or Ceylon."

The essential nature and general pathology of tuberculosis form the subject of the sixth chapter, which opens with a ca-

talogue of the principal theories that have prevailed in different ages of the world. The chief doctrines which have been broached of late years are then more fully described, viz., Carmichael's theory of indigestion; Todd's strumous dyspepsia, dependent on portal plethora; M. Shultz's imperfect chyle and lymph granule; Simon's lymph hypothesis; M. Parola's doctrine of imperfect hematosis; the theory of the inflammatory nature of tuberculosis, such as is advocated by Williams, for example, who believes that lymph, pus, and tubercle, pass by imperceptible gradations into each other; the nervous hypothesis of Copeland; Dr. Madden's poison theory; and, lastly, the theory of mal-nutrition, as entertained by M. Baudelocque, Dr Hughes Bennett, and Dr. Addison. Of all these views, Mr. Ancell is disposed to admit the last theory to be the nearest approximation to the truth; so much so, indeed, that he believes the pursuit of the inquiry, as thus indicated, "will ultimately lead to a knowledge both of the *modus operandi* of the causes, and of the essential nature of the disease."

Mr. Ancell's own ideas of the disease we have already referred to, as well as the combination of proofs by which he was led to espouse it. Agreeably to this view, it is a point of the most momentous importance in practice to be enabled to diagnose the existence of tuberculosis *previously* to the deposit.

"In many cases, with a knowledge of the antecedent and present history of the patient, and a correct estimate of the causes of the disease, the diagnosis may be made, if not with certainty, still with a high degree of probability: in other cases, with all this knowledge at our command, it is a problem of the greatest difficulty. It involves the determination, at any period of life, of the existence or non-existence of a tuberculous condition of the blood, of that quality which produces the mal-nutrition of the tissues, so fully described (p. 20), and which keeps the individual in continual risk of the exudation into the intimate structure of the vital organs of an imperfectly organizable blastema. Unfortunately, microscopical anatomy and chemistry afford us little assistance: there is at present no known sign of diagnostic value by which tuberculous blood can be distinguished from that which is non-tuberculous. In the absence of this demonstrative evidence, we can only fall back upon the history of the case, and the existing signs and symptoms. There are none of the latter, taken separately, which do not occur in other diseases; at the same time, there are certain combinations which render the existence of tuberculosis highly probable, if they do not reduce it to a certainty, and that certainty may not infrequently be secured by attention to the family history, the occupations and habits of life of the patient, and the diseases to which he has been previously subjected."

If we can, then, from a consideration of *combined* phenomena, ascertain that the tendency exists, we may be pretty sure that the tuberculous state of the blood is also present, and that the time for action has arrived. It were much to be desired for practical purposes that this department of the subject, especially the differential diagnosis, had been treated more in detail. We must repeat, that the main point for the practitioner is the *early* discrimination of the disease; and we fear that he would seek in vain in this work for any addition to the knowledge already accessible on this point. As we have already mentioned, Mr. Ancell gives great hope for the curability of the disease:

"The local mischief can never be repaired so long as the blood continue diseased, and if the blood by any means resume its normal constitution and its healthy vitality, the local affections, if no vital organ be too extensively diseased, will get well spontaneously."

And even in the most advanced and necessarily fatal cases, every prudent practitioner will exercise the very greatest caution in their prognosis as to time.

"The propriety of this follows especially from the following considerations:—Death by the blood disease is essentially slow, the blood becomes gradually more and more affected, and the nutrition over the whole body ceases. Ultimately it would appear that the blood is totally incapable of furnishing, not to say an imperfect blastema, but a blastema in which fibrillation and cell nutrition are possible. Its tint is very often changed, appearing, through the transparent tissues, of pinkish-violet shade; and the larger cutaneous vessels, although very thinly covered with the surrounding tissues, are comparatively empty. Where no intercurrent affection of the nervous system intervenes, the maintenance of the nervous and intellectual power to the last is truly wonderful. The appetite continues good; the functions of the alimentary canal perfect; the senses keen; and the intellect clear, in the midst of the havoc produced by the general failure of the nutritive functions; but that this exhibition of vital force is fallacious, as to its real amount, and the constancy of its supply, is shown by the exhaustion which intervenes, and by the frequent occurrence under these circumstances of a suddenly fatal issue before the local complications have run their complete course. A knowledge of these facts induces the necessity for the caution we have mentioned,—a patient whose existence might be expected to be prolonged for weeks, or even months, will sometimes die from exhaustation alone, on some slight change of position or any severe mental impression. We have seen men engaged in their business a day antecedent to death brought about in this way; and a lady has been known to order her carriage, pay visits, and die within a very few hours afterwards. So also the fatal event will

sometimes follow, where the appetite has been good to the last, and very shortly after a full meal."

The relation of tuberculosis to other blood diseases forms the subject of a most interesting section. Tuberculous disease may, indeed, be found associated with any other; but it seems to be established that, from the infrequency of certain associations, some diseases appear to be antagonistic. Thus cystic tumours, especially of the ovary, bronchocele, chlorosis, scurvy, cancer, gout, typhus, typhoid and intermittent fevers, are but rarely found coexistent with or inducing scrofulous diseases. As this point is one of practical importance, as well as calculated to throw some light on the pathology of the blood, we are glad to see that Mr. Ancell has treated it *con amore*, and by useful hints and suggestions rendered it a most valuable and original feature of his work.

The seventh chapter is devoted to the nosology of the disease; we cannot afford room to do more than refer to a single topic discussed, namely, the cause of the *hectic* paroxysm. Purulent absorption has been deemed the most usual pathological state. Without entirely denying this view, Mr. Ancell believes that it most probably takes its rise from the destructive processes in the organic tissues, which are capable of furnishing a sufficient irritant produced from the *effete* materials, and absorbed into the blood. But whence the periodicity of the paroxysms? To answer this, we must appeal to the physiological law of periodicity in general, and in relation especially to the process of absorption, which is known to be subject to disturbing causes. This view is corroborated by the fact, that digestion influences the times and character of the hectic symptoms.

The treatment the subject of the remaining chapter is (VIII.).

The means of prevention occupy, of course, the largest share of his attention; and in the management of this subject we think he exhibits more than usual acumen and comprehensiveness. Instead of following the beaten path, he enters largely into the most likely mode of limiting the disease, not merely in individual cases, but in the community at large. He successively points out the means of restricting hereditary transmission, the production of the disease or its predisposition in the propagation of the species, its development in the fœtus, and after birth; and concludes the subject with the medicinal treatment, the means of preventing the deposit, and rendering it inert. Though he does not attempt to lay down a complete system of hygiene, yet are we fully satisfied that

nowhere will be found a more useful, interesting, and finished sketch of this important department. Agreeably to the author's view of the pathology of the disease, his aim has been especially—

"To describe those measures upon which our chief reliance is placed for converting unhealthy into healthy blood, and for securing the absorption and elimination of the imperfectly organized tissues of tuberculous subjects, and the assimilation of more fully elaborated and organized materials."

Under the hygienic circumstances, which are given at length, Mr. Ancell is decidedly of opinion, that tuberculosis *could never be acquired;* and, by consistent and efficient treatment, even in confirmed cases, *the disease may frequently be cured.* It is difficult to make a selection from this chapter, which contains so much of valuable fact and remark. The following, however, is a fair specimen:—

"*The Diet of Tuberculous Children.*—The real difficulty as respects diet arises from weaning. . . . Suffice it to say, that our most watchful care is required to see that children are fed with a diet which contains all the staminal or essential principles of nutrition in due proportion; that they are neither over nor under, nor too seldom, nor too frequently, fed, and that their diet is neither too concentrated nor too diluted. In practice, we find all these points most grievously sinned against. Animal food should be allowed from the very earliest period that they can masticate it, and they should be most carefully taught to do so; they ought also be habituated to the use of fat; and should any difficulty on this point arise, the meat should be so chopped and mixed with the fat as to disguise it. Neither the principle of invigorating the frame, nor the tendency to strumous dyspepsia, ought ever to be lost sight of, and the latter ought to guide us in the rejection of injurious and doubtful articles of diet: of these, articles having the saccharine principle as a basis are, perhaps, most frequently at fault; an excess of sugar ought to be most carefully guarded against; and when we consider the weak structure of the digestive apparatus, and the defective animalization of the digestive fluids, it becomes obvious how necessary it is to prohibit fermentable and tough indigestible vegetable matters, as jams, marmalades, fruits with thick skins, 'waxy' potatoes, and the like. As children advance in years, their diet admits of modification; but so long as the object in view is to renovate the tuberculous constitution, and no local disease exists already inflaming the blood, a good diet should be steadily maintained. Even throughout various forms of local inflammatory disease, such a diet is attended with the most beneficial results over the local manifestation, as frequently witnessed in tuberculous ophthalmia, cutaneous affections, bronchitis, affections of bones, glands, &c. It has sometimes happened, at all

events in adults, that, in consequence of good diet, in conjunction with constant exposure to the open air and exercise, the tuberculous state of the blood has given place to healthy hematosis, and the local disease has healed, even in the last stage of tuberculosis pulmonalis."

The following extract, on the use of cod-liver oil, seems to us to give a very impartial view of the results of the experience of this agent; it is neither enthusiastic nor tame, but places the remedy satisfactorily before the mind as one of the most valuable auxiliary agents in the treatment of tuberculosis:—

"Among the advantages which result from the use of the cod-liver oil in tuberculosis in any of its forms, there is none perhaps of more importance than that it sustains the nutrition and strength of the patient, so as to allow of all the other hygienic and therapeutical measures necessary for the recovery of the patient to be adopted and persevered in.

"The oil should never be administered empirically, but always as a part of the rational system of treatment. I feel convinced that it has often failed when it might have succeeded, for want of attention to this principle. It should be remembered, that notwithstanding its undoubted beneficial influence, the permanency of its effects is still undetermined; and although it may increase the weight of the body and improve the constitution in some particulars, patients frequently remain pallid under its use, and soon relapse.

"Exercise in a pure air, a good diet, cod-liver oil, attention to the secretions and excretions, and the bath, are so many hygienic and therapeutical remedies, ancillary to each other, and offering a fair chance of renovating the blood, improving the nutrition, and curing the disease, to which may be added iron and other medicinal agents, as the particular form of the disease or the particular case may require."

Our readers will now perceive, from our brief analytical outline of so bulky a volume, something of the scope and value of its elaborate details. The mere compilation of such a work must have been a task of no ordinary labour; but when we reflect, that the web that binds the vast host of facts, gathered from the records of all times and countries, is the result, in a great measure, of original thought and original research, our wonder gives way to the more lasting and worthy sentiment of admiration. Not merely is there much given of established facts, but we have here the embodiment of those facts in general principles, whose ultimate practical application we at the present time, perhaps, only dimly discern. Mr. Ancell's style is plain, but eminently perspicuous. He uses no rhetorical flourish or poetic imagery; even a metaphor is rarely indulged in. He aims at giving the unvarnished idea, and we have sel-

dom to complain of needless repetition. We think the profession is deeply indebted to the author for the labour he has undertaken, and the talent he has exhibited, in presenting at one view the complex subject of tuberculous disease, and placing it in such a novel and instructive light as must ultimately educe a more rational and successful practice than has hitherto been adopted.

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*Practical Remarks on Palpitation and other Functional Diseases of the Heart.* By John Calthrop Williams, M.D., &c.; Physician to the General Lunatic Asylum near Nottingham, &c., &c. London: Churchill. 1852. Second Edition. 8vo, pp. 207.

It cannot be denied that the pathology of cardiac diseases has been the subject of industrious investigation, and if that certainty in results, so desirable by the practitioner, has not been gained, the fault rests not in the neglect of the pursuit of knowledge, but in the difficulties which surround the question. We think it must be admitted, that fastidiousness is one of the characteristics of the age we live in. The wonderful improvements of modern times are regarded without astonishment, and the ignorance and privations, as regards knowledge, of our forefathers, in comparison with their descendants, are often reflected on with contemptuous pity. The scientific investigator, possessing an enlarged mind, must, however, feel that knowledge has its limits. He may make discoveries, but, as each new light is thrown on his path, he more clearly perceives the rugged way, and the difficulties which impede him. The point of ascent at which he aims is yet far above, and mayhap not to be reached.

We have been led to these reflections by a consideration of the great improvements in the diagnosis of cardiac diseases afforded by auscultation, although not yet productive of that perfect accuracy satisfactory to the inquiring mind. To-day we may almost map out the size of the heart, and speak confidently of the exact seat of valvular disease, which will be verified by post-mortem examination. To-morrow we shall meet with a case in which all the resources of our art will fail, for a time, to determine the question,—whether the disease be organic, or merely functional, and available to successful treatment. We should not, however, be thereby deterred from persevering investigation, and we are gratified to observe, that the author of the work before us has given his aid in an endea-

vour to elucidate an obscure but highly interesting subject of pathological research. We quote his own words in explanation of his intention:—

"My object will be especially to point out the distinctive marks between palpitation the result of organic disease, and sympathetic or nervous palpitation, delineating less minutely the symptoms of actual organic disease, and more carefully those which simulate disease of the heart, so as to unmask the nature of palpitation when it exists as a sympathetic phenomenon."

Two chapters are devoted to the consideration of the phases of the heart's action, morbid and natural, on which it is unnecessary for us to dwell. The author gives Dr. Walshe's opinion on the points of distinction between organic and inorganic murmur: he attaches some importance to the venous hum in the jugular veins in anemic persons, as indicating that the abnormal sound of the heart is of purely functional origin, but properly alludes to the possible co-existence of organic disease as rendering the diagnosis difficult. In determining on such points we must examine carefully, and weigh well, all symptoms and signs before coming to a conclusion, and under such circumstance a single sign may ultimately influence our decision. Thus, in a case which lately came under our notice, the venous murmur mainly guided us in the treatment. A girl, aged 14, had been complaining for some days of pain in the cardiac region, which gradually increased in severity; the action of the heart was greatly excited, with strong impulse, but there was no abnormal murmur over this region; the pulse was quick and soft. The patient was of spare habit, with a pallid face, but not decidedly of an anemic character; a loud venous hum was observed in the jugular vein, and we arrived at the conclusion, that the pain was neuralgic in an anemic individual. The solution of the pernitrate of iron was administered, and in ten days afterwards, the menses appeared for the first time, with immediate relief to the cardiac symptoms.

The author divides palpitation into active and passive, the former occurring in persons of plethoric, sanguine, and susceptible habit, its most frequent cause being congestion of the heart. In this form the impulse of the heart is increased, laboured, and struggling, but the force of the arterial pulse is diminished, because the heart is unable to circulate the blood with its accustomed energy. The difference in character between the apex beat and the pulse affords a diagnostic mark between congestive and plethoric palpitation: in the former, the excess of blood is confined in a great measure to the heart and pulmonary venous system; in the latter, the whole system

is in a state of plethora, and the force of the heart's impulse and of the pulse are both increased. To distinguish these affections from hypertrophy is often a matter of considerable importance, and Dr. Williams lays down the following diagnostic signs:—

"In the organic disease the impulse of the heart is hard, circumscribed, and heavy; it raises the head of the observer at each stroke. The sound, instead of being clear, is obscure, and, as it were, muffled. The area of percussion dulness is increased, and the apex is often displaced. In the functional disorder the impulse is excessive, but short, and not heaving; the site of the apex beat is not displaced; the sounds are loud and clear, perhaps too loud; there is no abnormal præcordial dulness: we have, in fact, what Dr. Latham aptly terms, 'mock hypertrophy.' In hypertrophy, when the palpitations are *pro tempore* suspended, the beat of the heart still remains hard and more circumscribed than it ought to be; and, indeed, the movements of the heart are not always of a nature to merit the name of palpitation; they are not necessarily more rapid than in health; the patient does not always perceive them himself; and when he does, although they may in reality be much more forcible than natural, he seldom complains of the sensation being a source of distress, unless when the capacity of the chest is diminished by pressure, position, or otherwise. He attaches no undue importance to his symptoms, he evinces no unnecessary alarm respecting them, and even in the advanced stages of the complaint seems insensible to his danger."

We must refer our readers to the work for an exposition of the various causes and characteristics of "sympathetic or passive palpitation." Various authorities are quoted, and we are surprised at the omission of the name of Dr. Corrigan from among them. That physician published in the Nineteenth Volume of our former Series a valuable paper on functional derangements of the heart, in which interesting and novel views were advanced. There is no allusion to the most important of them in the work before us, and certainly our author's task would have been more perfect, had his attention been directed to the communication referred to. He who publishes a work should be well acquainted with the literature of his subject; at the same time, it must be admitted that isolated communications may possibly escape observation, and we are willing to believe such to have been the case in the present instance.

We shall here allude but to one point, to which Dr. Williams directs attention, namely, to the deductions from intermission of the heart's action and of the pulse. This phenomenon has been ascribed by Forbes to unsuccessful action or contraction of the ventricle,—not an *intermission* of the ventricular

contraction. Laennec believed the existence of two kinds of intermission,—one, *real*, consisting in actual suspension of the heart's contraction; the other, *false*, resulting from contraction so feeble as to be incapable of perception by the finger applied to a distant artery. The patient is often conscious of this peculiarity, and Dr. Brown thinks that this perceptibility is pathognomonic of nervous or sympathetic intermission of the pulse, and does not occur when the phenomenon bears reference to organic disease of the heart.

Without stopping to investigate the value of these opinions, we may observe, that intermission of the heart's action and of the pulse apparently exists, not only independently of organic, but, we would add, if the term were allowable, of functional, disease. Lately, an eminent provincial physician visited us, and, in course of conversation, extended his hand to have the pulse felt; it was intermitting. "Such," he observed, "is the character of my pulse so long as I remember, and yet I never felt that I had a heart." We informed him of two persons who were for more than ten years under our observation; they presented this phenomenon independent of any symptom of cardiac disease,—one, a gentleman, died at the age of 78, of influenza; the other died aged 82. We are not prepared to say how long this character of the circulation had existed previously in these persons.

It is a curious fact, supported by the experience of eminent observers, that in persons subject to irregularity of the pulse, the arterial beat became regular in the course of severe fever; and the first indication of an approaching favourable crisis has been the return of the pulse to its habitual irregularity. We cannot decide on the cause of this special character of the circulation. It is a question, whether it may be congenital, or acquired from some morbid alteration or sympathetic action, and remain established coexistent with perfect health to the individual.

We regret that the interesting subject of functional disorder of the heart, with diminished action, has not received more attention from Dr. Williams; it is involved in obscurity, and has not obtained a sufficient amount of investigation. Where the cause is apparent, and the affection only temporary, as from excessive loss of blood, we can comprehend the character of the complaint; but when slow in progress it gradually becomes more marked, the heart losing power by degrees, accompanied by a feeling of sinking or by syncope, the only explanation which presents itself depends on the vague supposition of diminished nervous energy, or the existence of disease

beyond the reach of diagnosis. We believe, that where the complaint exists without an evident pathological cause, its origin may frequently be ascribed to great mental exertion, accompanied by undue fatigue of the body. Under such circumstances, the great nervous centres and the heart suffer; there is no compensating power, and disease follows as a necessary consequence. In the absence of moral causes, we may infer the arrest of nutrition to the heart, but our conclusions must often be unsatisfactory, from our limited power of diagnosis in those distressing affections.

The author notices angina pectoris, and details the various opinions entertained as to the nature of this disease. He regards it as a neuralgic affection of the heart, excited by a variety of causes, or often superadded to organic disease of that organ; the seat of the malady being in the sensory nerves of the heart. This opinion is in opposition to that of M. Bouillaud, who places it in the intercostal and phrenic nerves. It is to be hoped that histology may hereafter throw some light on this intricate subject. It appears probable that there may be some morbid alteration in the heart's structure which pathological anatomy is not sufficient to demonstrate.

The chapters on diagnosis and treatment are well worthy of attentive perusal, and contain many useful hints, to which even the experienced practitioner may refer with advantage. On the whole, the work is written in a clear and philosophic style, without any attempt at effect, and bears the stamp of thoughtful research and matured experience on an important and interesting class of diseases.

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*Discours sur les Remèdes Secrets, Autorisés par le Gouvernment.* —Par M. Soubeiran, Secrétaire Général de la Société de Pharmacie de Paris. Paris: E. Thunot et C^ie^. Pamphlet, pp. 24.

In M. Soubeiran's pamphlet, which consists of an address read, and received with the most marked attention, at the re-opening meeting of the School of Pharmacy and of the Society of Pharmacy, in Paris, we are presented with much valuable and interesting information in reference to "Secret Remedies," and their authorization by the French Government. That the subject is most important, as being intimately connected with the public health, and that it is, therefore, one which we may with advantage consider, not only as it concerns our neighbours but ourselves, will scarcely, we think, require argument

to prove; we shall therefore at once proceed to an examination of the contents of the discourse of the renowned pharmacien.

In the commencement of his address the author states, that his intention is not merely to bring before his hearers abuses of the existence of which they are well aware, but to show the Government what useless productions, what fruits of charlatanism, and what barefaced impudence, are fostered by its protection; and how, under its ægis, ignorant or avaricious men turn to their own profit both the purse and the health of the community.

The evils of the system he is about to denounce had not escaped the penetrating sagacity of the Emperor Napoleon; for by a decree on the sale of secret remedies, dated 8th August, 1810, he declared *null* all authorizations which might have been previously granted, and enacted, that new and useful remedies should be purchased by the Government after due investigation, and that they should be made public.

This decree, however framed in wisdom, was rendered fruitless by the simple fact that it was never carried into effect; and as the reason assigned by the author for its having been allowed to remain dormant involves a description of French character, which, as being drawn by a Frenchman, will probably interest our readers, we shall quote it at length.

"France," he says, "is, I believe, the only country in Europe where so little attention is paid to the execution of the law, and for this reason, that the Government is always more or less the reflection of the people with whose guidance it is charged, participating in its qualities and its defects, and often equally devoid of fixity of design and of consistency in performance. We are, it cannot be denied, a nation of rare intelligence. With no other people do so many ideas originate, nor do any express their thoughts with more clearness; no other nation exhibits so much sagacity in discovering the still distant object of its search; hence are derived the mission of initiation which has devolved upon us, and the influence we exercise in the world. Had we but the secret of combining perseverance and moderation with these eminent qualities,—perseverance, which ensures success, and moderation, without which the best things may become the worst,—we should be entitled to style ourselves the first people in the universe. But, alas! such has not been the will of Providence; we have been subjected to the law of all terrestrial things, among which nothing is perfect; evil stalks side by side with good; the harmony of the whole is purchased with the imperfections of the detail. How often have our creative vividness of imagination,

our rectitude of mind which rushes straight to its goal, remained unfruitful through our want of perseverance! How often, in our exaggerated desire to arrive quickly, have we dashed ourselves against the obstacles with which our road was strewn, because we had not patience to turn them aside or remove them! How many great and pregnant ideas have arisen in France, and yet, in order to be productive, have needed to ripen in less impatient minds!"

Notwithstanding, then, that Napoleon's intention in issuing the decree was, "on the one hand, to diffuse the knowledge and augment the useful resources of the healing art; and, on the other, to restrain quackery from imposing a tribute on credulity and from causing fatal accidents," it was never put in force. A commission was to have been appointed to examine and declare if the remedy brought before them was free from all possibility of being dangerous or hurtful in certain cases; if it was good in itself; if it was productive of effects useful to mankind; and, lastly, what was the price to be paid to the inventor.

Nothing could promise better, observes M. Soubeiran, but the execution was lamentable. The Government did not buy the remedies which had formerly received authorization. In this, he adds, it did well, for they were not worth setting a price on. In a word, the decree was first postponed, then modified, and, finally, superseded by an older decree, which permitted the advertisement and sale of authorized remedies, thus anew throwing open the door to the invasions of quackery.

The author believes that a man practising any branch of medicine, and having made a discovery useful to mankind, is morally guilty if he conceals it. The law is then easily framed: it need only forbid the sale of secret remedies, without taking further notice of medical discoveries. But such principles are not acceptable now-a-days, and the author feels himself obliged to assume, that the discoverer of a mode of treatment, or of a new remedy, has a right to monopolize it to his profit, or to exact a suitable indemnity from society.

The value of a discovery in medicine is estimated not by the mental efforts, or the labour it may have cost its author, but by the service it renders to the healing art. If it has furnished the means of neutralizing any of the great scourges which prey upon humanity, the recompense cannot be too splendid. Such has been the introduction of bark or of mercury into medicine, or the discovery by Coindet of the therapeutic action of iodine. In such a case the Government cannot hesitate; its duty is to recompense the author largely both in

honour and in fortune; it ought also immediately to publish the composition of the remedy, not only that it may be known to all, but also to prevent its price being so raised, through the necessities of the discoverer, as to render it inaccessible to any. In the author's opinion, the strict enforcement of the decree of the 18th of August, 1810, is the only admissible rule in dealing with such heroic remedies as are a boon to mankind. Supposing, for example, that an unfailing remedy for hydrophobia were discovered, could we hesitate to publish it, and place it within reach of all?

But past experience will prevent the Government adopting the mode of recompense by purchase, "for if it has been judiciously advised to acquire in this manner the knowledge of certain remedies, as bark, ipecacuanha, and Kermes mineral, has it not also been induced to spend the public money in purchasing some formulæ which have immediately and justly fallen into oblivion? Even the Academy of Medicine itself proposed to pay 24,000 francs for a remedy which had, forty years before, procured a recompense for its original inventor. Still this system of purchase would undoubtedly be the most advantageous, and would be calculated to make the Government sparing of this class of rewards."

As, then, the system of authorization to sell is that likely to be adopted, the author feels bound to state the conditions which should regulate their issue.

The great difficulty is to decide what discoveries deserve to be rewarded. If every improvement in the preparation of a medicine, or every new pharmaceutic form applied to a substance hitherto employed in another manner, be so entitled, it is clear that the committee of investigation would not have a moment's repose. There is no pharmacien of intelligence who could not supply such inventions, and the author himself would undertake to bring forward a weekly contingent of such easy discoveries.

To meet this difficulty M. Soubeiran proposes that the committee of investigation should consist of a few *ex officio* individuals, whose knowledge, independence, and disinterestedness, would warrant the justice and impartiality of their decisions. Such would be found, for example, in the Dean of the Faculty of Medicine, the Director of the School of Pharmacy, the Professors of Chemistry, Pharmacy, and Natural History of the two Schools, the Professor of Therapeutics, and a Practising Physician and Pharmacien.

The authorizations should only be granted on the following conditions,—that the formulæ of the authorized medicines be

published, that such medicines be sold only by pharmaciens and on the prescription of a physician; that the authorization be personal and for a limited period; that publicly advertising the medical properties of the remedies be forbidden; and, finally, that all remedies which have to the present time received authorization be subjected to a new investigation.

It is necessary that the composition should be known:—first, that we may be sure the article we purchase is what it professes to be; secondly, that the vendor may not be at liberty to change its composition according to his own fancy, as has too often happened; lastly, how can it be conceived that a physician should prescribe a medicine without knowing its composition, and thus being enabled to foresee what influence it may have on the other substances which he may think it advisable to combine with it. On this subject the author quotes the following eminent authorities:—

"Nothing is more dangerous than secrecy in remedies," said the Royal Society of Medicine in 1790, "the most useful often become fatal by the simple fact of remaining covered with the veil of mystery. This mystery excites the enthusiasm and keeps up the credulity of the people. It produces uncertainty in the application of means employed without being known. The Society has in its records multiplied proof of the unhappy effects, and, we fear not to say, of poisonings, caused by remedies the success of which, in some cases, had been attested by well-known men, and by citizens of every rank."

"The simplest reflection," says Pelletan in his *Clinique Chirurgicale*, "is sufficient to show, that every man who retails a secret remedy is master of the health and of the purse of the sick who have confidence in it; but what are we to think of physicians who place themselves at the mercy of these quacks? And yet we see such every day prescribe the 'juice' of this person, the 'wine,' the 'pills,' of another, either in cases where their own remedies fail, or under the pretence that they have seen the best effects from these secret remedies. We might tell them that their personal resources must be very limited if they are reduced so low as to be obliged, like the vulgar, to have recourse to quacks; but it may be sufficient to show them that they cannot even depend on the remedies of the charlatan, liable as they are to be altered at his will, and that they may find themselves some day scoffed at by these very impostors, who have employed in their receipts only the same medicines which had been already well or badly administered by the regular physician."

The following is the opinion of an eminent practitioner:—

"When I see," says Swediaur[a], "men, legally authorized to style themselves physicians, recommending a secret remedy to their patients, I am moved with pity and indignation, because nothing can more strongly prove the degradation into which medicine has fallen in France than to see physicians prescribing a charlatan's nostrum—a secret remedy—in preference to making use of those with the efficacy of which they ought to be acquainted; or proposing to their patients to have recourse to the information of more experienced medical men if they feel themselves deficient in a particular department of the healing art." And in another place he observes:—"It is disgraceful, and would prove that the art of medicine is sunk to the lowest depth of degradation—it is disgraceful that physicians and surgeons, who have received a liberal education, should recommend at random the remedy of a charlatan, with the composition of which they are unacquainted, and of which they, consequently, cannot calculate the effects."

We need scarcely say how fully we agree in the foregoing observations. We can hardly imagine a more unscientific proceeding on the part of a physician than prescribing medicines of the composition of which he is ignorant. Surely the limits of the legitimate Materia Medica are not so narrow that remedies, *at least* as efficacious as those whose nature is thus veiled in mystery, should not be found within them.

The sale of an authorized remedy should only be intrusted to the pharmacien, and should not be allowed without the special prescription of a physician. M. Soubeiran cannot see why the guarantee of men, whose education renders them competent judges of the indications for administering remedies, should be dispensed with; either the remedy is trifling, and it does not merit the favour of an exception; or it is active, and cannot safely be exhibited indiscriminately, and without the direction of a professional man. The authorizations should be personal. The Government has always a right to know into what hands the authorization is intrusted, and if the possessor deserves its confidence. The authorization to sell a new remedy should be only for a limited time. "What a strange anomaly! While Watt in England, Fulton in America, whose labours have changed the aspect of the human race; while in France, Leblanc and Dizé, the inventors of the processes for making artificial soda; Berthollet, who has created the art of bleaching by chlorine; Achard, who has taught us to extract sugar from beet-root; Papin and others, who have

[a] Traité des Maladies Syphilitiques.

immortalized their names by valuable discoveries,—while these men, who with giant strides advanced human progress, have been rewarded with a few years' privilege, the authors of inventions of the most slender merit receive an authorization in perpetuity, which becomes a veritable patrimony to them and their descendants."

The person receiving an authorization to sell a new remedy should be absolutely prohibited, under pain of immediate forfeiture and other penalties, from advertising it, with any description of its medical properties, whether in the newspapers, or by placards, prospectus, or in any other mode. The author considers that imaginary diseases are created by the perusal of such advertisements, and mentions a case in his own family, in which death occurred from the effects of a purgative elixir imprudently exhibited on the faith of one of these deceitful prospectuses. Nor are advertisements necessary to inform the medical profession of the existence of such remedies; the medical journals are sufficient for this purpose. But it is to the non-professional reader that they are addressed, and he, supposing from their perusal that each disease has its special remedy, omits the important point of really ascertaining the nature of his disease, and never suspects that a medicine to be useful must be administered in doses apportioned to the period and changes of the malady.

The British public should take a hint from the answer which has been given by the defenders of the authorization system to all these arguments. It is, that there are more dupes abroad than in France, and that the exportation of these remedies is a source of national wealth. "But," replies M. Soubeiran, "the public conscience will arise and protest against such a thought, for in France profit does not justify iniquity." "Those who use such an argument," he continues, "have not retained any portion of our chivalrous and ancient Gallic blood They would demand that we should engage in an *opium war* to insure the sale of their noxious drugs!"

The secret remedies, the sale of which is authorized in France, are the pills of Belloste, the grains of health of Dr. Franck, the powder called Irroë's, the anti-syphilitic juice of Laffecteur, the ophthalmic pomade of the widow Farnier, the powder of Sancy, the biscuits of Ollivier, and the anti-dartrous pomade of Kunkel.

As a specimen of the absurdities which are published with the sanction of the Government, we may quote from the prospectus of the powder of Irroë, in which this remedy is said to

"cure all sorts of diseases," and is declared to be "good for all sorts of patients, and even for those who are in perfect health."

There is no mystery as to the essential composition of the biscuits of Ollivier; they consist of corrosive sublimate, combined with some protein compound. Yet it is on a Report of the Academy of Medicine that the Government has sanctioned the use of this dangerous remedy in the hands of a quack. "There is no assembly so learned," observes M. Soubeiran, "that it is not sometimes at fault."

The composition of the anti-syphilitic juice of Laffecteur, which is sold at an exorbitant price, has constantly varied. It ought to be nearly the same as that of the compound syrup of sarsaparilla of the Codex; but the pretended vegetable juice of Laffecteur at one time contained mercury, and Swediaur saw patients in whom it produced a violent and characteristic salivation. This statement reminds us of a compound of, we believe, corrosive sublimate, sugar, and water, which was largely sold in this country, some years ago, at thirteen shillings a bottle, under the name of De Velno's *vegetable* syrup. The powder of Sancy has lost its importance since the discovery of iodine; the pomade of the Widow Farnier is an ordinary ophthalmic ointment; the base of Kunkel's pomade is oxide of copper.

M. Soubeiran concludes his pamphlet by repeating his opinion, that legislation on the subject of secret remedies ought to revert to the decree of the 18th of August, 1810, to be applied in all its rigour; and that authorizations to sell should not be granted; but adds, that if the Government should, notwithstanding, decide on maintaining the system of authorized remedies, the permission to sell ought to be given only on the following conditions:—

The receipt to be made public.

The permission to be personal, and limited to a certain number of years.

The remedy to be sold only by pharmaciens, and on the authority of a physician's prescription.

A maximum price to be fixed for the sale of the medicine.

Advertising, with a description of the medical properties of the medicine, to be strictly forbidden.

The infraction of any of these conditions, or a change in the composition of the remedy, to be punished with forfeiture and penalty.

Having thus taken a rapid survey of M. Soubeiran's interesting and useful discourse, let us for a moment glance at the position of quackery in the British Islands. The revenue de-

rived by the Government from stamps upon patent medicines has averaged, as appears from the Table of the net amount of Inland Revenue, contained in that elaborate and authentic volume, Thom's Irish Almanac and Official Directory for 1853, during the five years 1847 to 1851, both inclusive, £30,350 per annum for Great Britain: the duty does not extend to Ireland. An additional income is of course obtained from the stamp duty charged on the numerous advertisements of these medicines, which disgrace the columns of many of our newspapers and journals, alike outraging decency and tending to the spread of immorality. Still, it is beneath the dignity, as it is decidedly contrary to the duty, of a Government to draw its revenue from so polluted a source: such a course could not properly be defended were the profit one hundredfold the paltry sum for the sake of which our national morality is compromised. But were we to descend to lower ground, and view the matter in a mercantile and financial aspect, we might prove that, in conferring on the sale of quack medicines the protection and sanction of the State, the Government is guilty of the shortsightedness so common to those who "hasten to be rich." We might ask, from whom is our national revenue derived? Undoubtedly from the working man. Is it then *prudent* to subject him, on whose health and strength we are dependent, to become the victim of unprincipled and designing men? Under the quack medicine system, a person suffering, suppose, from dyspeptic symptoms, the consequence, it may be, of a sub-acute or chronic inflammatory condition of the gastro-intestinal mucous membrane, will probably have recourse to some drastic cathartic, and, obtaining a temporary feeling of relief, will recur to it again and again, until he finally brings on a fatal illness; or, mayhap, being affected with an inflammatory condition of some portion of the organs of respiration, he may, by the use of a vile stimulant,—so-called "pectoral" nostrum,—establish a dangerous pneumonia, or with opiate wafers check the salutary secretion set up by nature as a relief to the congested organ. Yet these are probably not the worst instances which might be adduced of the effects of "secret remedies." On the high grounds, then, of duty and morality, and on probably the more touching one of true self-interest, we call upon our rulers to take M. Soubeiran's excellent little work into their serious consideration, and to apply to British legislation the principles therein set forth.

*What to observe at the Bedside, and after Death in Medical Cases.* Published under the authority of the London Medical Society of Observation. London: Churchill, 1853. Post 8vo, pp. 136.

In the year 1850, the Society by which the above small volume has been published was established in London, for the purpose of "promoting the advancement of accurate Pathology and Therapeutics by clinical and allied investigations, the value of which shall be estimated by the numerical method; and to exhibit the special advantages which may accrue to the science of medicine by the co-operation of several persons working on a uniform plan towards the elucidation of given medical questions." The list of ordinary members, the number of whom is restricted to twenty-five, contains the names of most of the rising junior physicians in the great metropolis, and affords a sufficient guarantee that the above important principles will be fully, fairly, and honourably carried out.

The object in printing this their first book is to afford not only to their own members, but to all medical men engaged in clinical observation, an outline of a plan for carrying on the investigation of disease both during life and after death, and reporting the results. To the Society its adoption insures uniformity, and thus the labour of analyzing and comparing clinical observations is greatly lightened; and to all physicians a reference to its pages will render their inquiries and reports more accurate than they otherwise would be, the chief defects therein, as is truly remarked in the Preface, arising from "forgetfulness in searching for all possible evidence of disease." The work is divided into two parts, entitled: I. Clinical Examination of a Patient; II. Examination of a Body after Death. The former includes the following sections: 1. The personal description and peculiarities of the patient in health. 2. The previous history of the patient. 3. The cause of existing disease prior to the patient coming under observation; and 4. Condition of the patient at the time of observation. Of the latter, the sections are: 1. Points to be ascertained and noted prior to commencing an examination; and, 2. Points to be noticed during an examination. Each section is further subdivided minutely, in order that no question, whether important or apparently unimportant, should in any case escape attention. The following extract, being the first section of the second part of the work, illustrates the style and mode of "getting up" of the volume:

## § I.—Points to be ascertained and noted prior to commencing an Examination.

§ I.

329. *Name.* — Name.

330. *Date of death,* presumed or ascertained. — Date of death.

331. *Date of examination :*—" in a medico-legal case, precise time (local time) when called to see the body."* — Date of examination.

332. *Weather,* from the date of death, to that of examination. —*Temperature* to which body has been exposed. — Weather.

333. " *Medium in which body has lain* from date of death to that of examination;—in earth, clay, sand, gravel, mud;—in water, salt, fresh, stagnant, running, turbid (from earthy, vegetable, or animal matters?);—in gas, carbonic acid, sulphuretted hydrogen, &c. (noting circumstances under which it has been exposed to the above)." — Medium in which laid.

334. " *Substance on which body has lain.*" — Substance on which laid.

335. *Posture of body* between death and examination;—on back, on face, &c.; length of time it has lain in that posture. — Posture.

336. " *Position of body* in relation to the room, stairs, &c.; to articles of furniture;—relation of parts of body to the above.—If found hanging, note posture of body, and how much touches ground." — Position in relation to other objects.

337. " *Odour* in the room, at different parts of it; near body or at a distance from it?—Odour about body itself before stripping, after clothes have been removed (of poisons, of putrefaction, &c.)." — Odour.

338. " *Clothing on body* or lying near it (noting special articles).—Nature and amount of covering; its arrangement; evenly or in creases?—*Vomited matters* upon them, on what part? examine for poisons (139).—*Blood stains* on clothes, on which articles? chemical and microscopical examination of stains;—part of clothing thus marked, so as to indicate posture of individual at time blood flowed over clothing;—blood appearing to have been sprinkled, as by jets from an artery, over the article of dress; smeared, generally; soaked through; stain chiefly outside or inside the garment?—does stain correspond with a wound in the dress or body?—marks of a bloody hand on clothing, at what parts? of one or both hands?—*Stains of other kinds;* of semen; of discharges; microscopical examination of stains (show absence of starch);—of acids.—*Wounds of dress;* their situation; size; cut or torn?—corresponding or not with wounds on body?—bloody or not? side to which blood chiefly applied.—*Dress blackened or burnt,* extent and situation of injury. —*Position of bed-clothes,* if body is in bed." — Clothn g— vomited matters. blood-stains. other stains. wounds of dress. burns of dress. position of bed-clothes.

339. " *Degree of manipulation* to which body has been exposed;—removal from the place at which death occurred, or where it was first found; the manner in which this was effected, lifted by hands, or feet, or both, &c." — Manipulation.

340. " *Cord round neck :*—its precise characters;—mode in which placed round, and its exact situation;—situation of knot;—knot single or double; firmness of each knot.—*Umbilical cord;* if round neck or body, note in what manner it is disposed, its condition, amount of stretching, &c." — Cord round neck. umbilical cord.

* As in Part I., the several points for observation included within commas have especial reference to medico-legal inquiries.

341. "*Articles about body:*—furniture and walls;—spots of blood on them, their exact situation, size, form, and direction; shining or dull.—Weapons (628).—Dishes, plates, or articles of food.—Bottles, corked or not.—Vomited matters, their exact situation, characters (139).—(Preserve and examine chemically and microscopically any of the above which may throw light on the case)." Articles about body.

342. *Fæces and urine*, found under body. Fæces, etc., under body.

343. "*When body is exhumed*, note condition of coffin as to soundness.—Examine soil, if necessary, for presence of metallic poisons—e. g. arsenic or copper." Condition of coffin, etc.

We regard this little book as a most useful and important contribution to medical literature, and we therefore think that the Society deserves the thanks of the profession for its publication. It is stated in the Preface, that the form of arrangement, which had been framed by Dr. Walshe, was expanded and altered in various parts by a committee to whom it was referred, and that the supervision of the whole was intrusted to Dr. Ballard.

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*Moral-Sanatory Economy.* By Henry M'Cormac, M. D., Consulting Physician to the Belfast General Hospital, &c. Belfast: 1853. 8vo, pp. 150.

*The Sanitary State of Belfast, with Suggestions for its Improvement.* A Paper read before the Statistical Section of the British Association, at Belfast, September 7, 1852. Pamphlet, pp. 31, with seven Maps and Plans.

*On the Connexion of Atmospheric Impurity with Disease.* A Paper read before the Statistical Section of the British Association, at Belfast, September 7, 1852. Pamphlet, pp. 7.

It is a trite and vulgar idea, yet one which has recently obtained the sanction of the great authority of England,—the Times newspaper,—that the medical profession has a direct interest in the propagation of disease and the continuance of those causes which produce ill health among the people. That ignorant and uninstructed persons should readily form such an opinion is not to be wondered at; but when we find it adopted and echoed by those who should and do know better, we are at once inclined to think how true is the old saying, "man is born to be an ungrateful animal." We have, in truth, no wish to laud our profession or its members; it has never been our habit to do so; but such injustice must plead our apology

if we recall to notice that, of all the learned professions, ours alone devotes the energies of its youth and the experience of its age, time, and talent, bodily labour and mental toil, to relieve the sufferings of the poor in disease, and lessen the pangs which attend the sick-bed of the pauper, without direct fee or reward. Who, in all ages and in all times, have so strenuously devoted themselves to devise means calculated to improve the public health, and to prevent or remove all causes injurious thereto, as medical men? We need not refer to history in proof of this; the present day affords evidence patent to all; witness the Sanitary Congresses abroad, the Sanitary Societies at home; the attempts made to remove nuisances from, and give lungs to, the overgrown cities and towns of the British Islands.

But we shall not tire our readers by reiterating facts to them well known: a reference to one case, that of Mr. Walker, shall suffice as an example of disinterested exertion in the cause of public health by a member of our profession, and of ingratitude on the part of a Nation. This gentleman, satisfied of the great injury to the health of dwellers in towns, which was occasioned by the common practice of burying the dead in the midst of the habitations of the living, devoted his time, his energies, and his limited purse, to the prevention of this practice, and in an endeavour to render extra-mural interments compulsory. After years of unremitting labour, he at length succeeded in compelling the Government to admit the truth of his views, and, as regarded London, to induce Parliament to enact a law to prevent further interments within its precincts.

This first step was at least a recognition of the correctness of the principle so urgently worked out by Dr. Walker, and an admission of its importance, yet to him no reward came; the public gained, but he lost. As we informed our readers in the Notices to Correspondents, issued in our number for November, 1850, a Committee was formed in London with the intention of presenting him with a national testimonial for the services which he rendered to sanitary reform, and to recompense him in some degree for the *official neglect* with which he was treated. But this Committee has, we were grieved to learn lately, been compelled to abandon the object for which it was instituted, in consequence of the want of support from the public as well as the Government.

These reflections have originated from the appearance on our table of the works on questions of sanitary economy, the

titles of which we have given above. Two of them, as may be perceived, were called forth by the presence of the British Association in Belfast last autumn, and serve as excellent models for those engaged in similar investigations. The pamphlet of Dr. Malcolm enters with some minuteness into an account of the sanitary defects of Belfast, and contains suggestions for their removal, and the improvement of the town as regards the health of the population. The subject is, of course, one of purely local interest, unless, as when on the occasion which induced the author to make his observations public, crowds of strangers are induced to visit the locality, and then it acquires a sort of general importance. The matter is well and ably argued, and the truth of his observations as regards some of the nuisances—especially that termed the Blackstaff—was testified to by nearly every visitor at the meeting of the Association; for our own part, we have not yet forgotten the abominable and sickening odour of that filthy open ditch running through one of the fashionable districts of the Irish northern metropolis.

Dr. M'Cormac's volume on Moral-Sanatory Economy would deserve, did our space permit, more than a passing notice. Conceived in the true philosophic spirit of good-will and charity towards man, written in a quaint Baconian style, and abounding in learned facts drawn from the rich store of the author's mind, we strongly recommend it to both the profession and the public. The work bears for its motto, "Education, Health, Order, Progress, Competence," and treats, in twelve chapters, of Female Degradation, Employment, Education, Household Culture, Criminal Management, Physical Training, Clothing, Food, Drink, Air, Drainage, and Prevention of Disease. As a specimen of the book, we cannot resist making the following extract from the chapter on Drink:—

"Water, assuredly, is among the cheapest and best of all drinks. Coffee, tea, cocoa, milk, wine, ale, owe their existence as beverages, and many of their good properties, to it. With all respect to the good Teetotallers, however, it would, I conceive, be better to convert apples into cider, than to give them to swine, *Temperance Chronicle*, 1850, p. 136. It is greatly to be regretted that wine is not more accessible to those who have so much need of it. The vintages of Spain, and even of France, as Cooke and others relate, perish for lack of consumers; the produce of the Indies is laden with restrictions, while poor British and Irish artisans and labourers faint unrefreshed over their heavy toil, or are consigned to pot-house orgies and gin-palace refections. The community are too much excluded from tea, coffee, chocolate, wine, malt liquors, conducive, in their purity, at once to health and temperate enjoyment. The privation, unhappily, is a premium, at once direct and indirect, upon excess.

Wine, irrespective of its cheerful natural solace, is admirable as a restorative in and after fevers, and those states of exhaustion to which multitudes in this anxious, striving existence, are liable. Doctrines which denounce alcoholic drinks as poisonous, Dr. Thomson has justly remarked, 'are at variance with reason, and unsupported by medical science, else keenly alive to the evils of intemperance.' The real seat of temperance is the soul! Amend men's habits, increase their comforts, enhance their moral and intellectual enjoyments, and we oppose an unassailable barrier to the dram-bottle. Nothing, except the general improvement of their nature, as Channing avers, can fortify the poor against excesses which make them scourges alike to themselves and to their race. He would conciliate their self-respect, the loss of which is their chief peril,—the chief peril, indeed, of us all."

"How deeply is it to be regretted that the opulent classes know so little of the poor, that poor of whom, as regards things temporal and eternal, the rule of life has constituted them guardians and protectors. What must be the condition of workers, who, by tens and hundreds of thousands, can filthily squander their children's means, and virtually sell their own souls? Light, unadulterated ales and wines refresh, but do not intoxicate. It is quite otherwise, however, with liquors drugged, not to refresh, but to intoxicate! Each cask of fiery spirit, falling into the hands of persons of untrained souls and untamed animal impulses, may very well be esteemed an epitome of the crimes and excesses that beset untutored humanity, when goaded by a passion, the passion for strong drink, which, as much as any other, needs the potent stay of habitual self-control. Some trifling impost, some two pence or four pence a gallon, on foreign wines, with corresponding reductions on hops, malt, tea, cocoa, coffee, would introduce these desirable refreshments into the houses of working men, and vastly increase the demand for British and Irish produce at home and abroad. Why should there not be a flask of wine or a jug of ale on every poor man's table, to the solace of the toil-worn artisan and labourer, the child-nurturing mother? If intemperance have slain its myriads, the absence of the temperate use of wines and ales, coupled with material destitution and decay, has also destroyed myriads. There are multitudes, as every medical man is well aware, in whom the healthful solace of pure vinous drinks, in conjunction with adequate solid nourishment, would arrest the else certain progress of disease and death. Those who so erroneously, although conscientiously, insist on the total disuse of wine, should peruse Krummacher's 51st Parable on the grape, *Der Wein, Essen*, 1850. 'As a refreshment, when the vital powers are exhausted, a protection against transitory organic disturbances, wine is surpassed by no product of nature or art:' *Liebig's Letters*, p. 445."

In the small pamphlet by Dr. M'Cormac, the title of which we have also given above, the author enforces specially the importance to health, and the necessity for warding off disease, of

pure air both within doors and without. It forms a useful supplement to the volume just reviewed, putting prominently forward the chief injuries which arise from atmospheric impurity.

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*An Essay on the Poison of the Cobra di Capello.* By John Cockle, A. M., M. D., &c. London: Highley. 1852. Pamphlet, pp. 32.

The fatal accident which lately occurred, from the bite of a Spectacle Snake, to one of the keepers in the gardens of the Royal Zoological Society of London, has attracted a very general attention, on the part both of the profession and the public, to the nature of the subtle poison, which proves nearly as quickly fatal as a flash of electricity. At ten minutes past eight in the morning the unfortunate man, Gurling, was bitten in the nose by this venomous serpent, the Cobra di Capello of naturalists, and in one hour he was a corpse, notwithstanding the persevering use of the most judicious measures to restore the sinking of the vital powers.

Dr. Cockle's object, in his short essay, is to point out the peculiar influence of this animal poison on the living system, and "to inquire how far the symptoms it produces therein can be reconciled with the hypothesis of a decomposition of the blood." In the Preface he thus states the conclusions at which he has arrived:—

"By investigations which offer a fine example of induction, Liebig has shown that arsenic produces its fatal results by preventing those destructive changes of the solids and fluids of the body which are essential to life. There are other poisons which seem to have the effect of accelerating those changes to an extent inconsistent with the performance of the vital functions. It might, I am inclined to think, be contended with success that the venom acts in this manner. The cobra poison and arsenic would thus be distinct types of two classes of poisons, the *septic* and the *anti-septic.*"

The author concludes his observations with some remarks on the local and constitutional treatment, which, if his views are correct, would be adapted for similar cases. The pamphlet is a very interesting one for those engaged in physiological studies, being well and clearly written.

# PART III.

## MEDICAL MISCELLANY.

### PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

SESSION 1852–53.

First Meeting, Saturday, 27th of November, 1852.

An Introductory Address was delivered by the President of the King and Queen's College of Physicians (Dr. Montgomery).

Dr. Henry Kennedy then read a paper on *Tympanitis*, as a special symptom of disease. He divided the subject into the acute and chronic forms; and detailed a case of the latter occurring in a man, where a tumour in the abdomen from this cause was supposed to arise from organic disease. This tumour suddenly disappeared while the patient was in a bath.

He then entered at some length into the consideration of what he termed acute tympanitis, and showed that the presence of this sign, which could be so easily detected, was of much consequence in the treatment of all those diseases in which it occurred. Dr. Kennedy especially alluded to fever, erysipelas, diffuse inflammation, and puerperal fever; and at some length he proved that when it occurred in any one of these diseases, the proper line of treatment was the stimulant plan, to the exclusion of all blood-letting, and even mercury. In conclusion, he drew attention to a recent Paper in Guy's Hospital Reports, where a series of *fatal* cases of puerperal fever were given, and in every one of which no other treatment but local bleedings with calomel and opium was used. He thought this sameness of treatment was one which might very fairly be called in question, and the results in the cases given spoke for themselves.

Dr. Atthill (Assistant to the Rotundo Hospital) then read a paper upon *the induction of premature labour in cases of deformed pelvis*. He drew the attention of the Society to the old methods of induction, and enumerated the various objections to each of these modes. He then detailed a case in which the douche bath (after the manner

of the Vienna Lying-in Hospital) was successfully used. The case was that of a woman four feet and a half in height, and greatly deformed from angular curvature of the spine, the result of caries of the vertebræ, from which she had suffered when twelve years old. The curvature included the last dorsal and all the lumbar vertebræ; and there also existed an appreciable diminution in the pelvic space. In September, 1849, she was admitted into the Rotundo Lying-in Hospital for her first confinement, when it was found necessary to lessen the head, after a rather protracted labour. In September, 1850, she was again admitted, and this labour was but a repetition of her first. It was then explained to her that she could not give birth to a living child at full term, and she was recommended that, if she again became pregnant, she should come into hospital when she was seven months gone with child, and submit to the induction of premature labour. Accordingly, in June, 1851, she again presented herself in the seventh month of gestation, but before any steps could be taken her husband removed her, having been told that if she submitted to any operation she might die: so that she was lost sight of until the 26th of August following, when she was brought into hospital in strong labour, and again for the third time the crotchet had to be used. On being discharged after her recovery, the necessity of her presenting herself at the termination of the seventh month (should she again become pregnant), was strongly urged upon her; and she acted according to this advice, for she came to the hospital on the 10th of September, 1852, being seven months pregnant. It was now determined to try Kiwisch's method of induction—the douche bath. The apparatus used in this case was a tin vessel, capable of containing two gallons of water, and to this was affixed a flexible tube, furnished with a stop-cock, terminating in a bone nozzle about five inches in length. The vessel was raised about five feet above the bed on which the patient lay supine, the pipe of the tube was introduced into the vagina, the stop-cock turned, and the stream directed against the os uteri by means of the index finger inserted along with the nozzle. Saturday, the 18th of September, was the date of the first application, and even this seemed to produce a marked effect, for, on examination immediately after, the os uteri felt soft and relaxed. The douche was repeated, morning and evening, regularly, until the following Friday (except on Wednesday night, when the tube by some accident got out of order). After the second application, the os began to dilate, and continued to increase a little in size on each application, until after the sixth douche, when it had attained the magnitude of a half-crown, but then it ceased to enlarge. On Friday afternoon, having been subjected twelve times to the douche, she complained of pain in her back, and asserted that she felt certain her labour was approaching. Next morning, at 11 o'clock, the pains came on regularly, though feebly; at 7, P. M., the membranes ruptured, the os being fully dilated, and the pains grew most powerful; the head gra-

dually descended into the pelvis until 9 P. M., when it almost rested on the perineum, but, although uterine action was strong, it ceased to advance further; and at 11 o'clock, no progress having been made for two hours, she was delivered by the forceps (while under the influence of chloroform), of a small, living female child about the seventh month. The two first days it had to be spoon-fed, but afterwards it took the breast freely. The mother recovered without the slighest drawback, and she and the child went out well on the ninth day. Dr. Atthill said, that, comparing this case with those given by Dr. Arneth of Vienna, it appeared that it required the exact number of douches (viz., twelve), to bring on labour, which he found to be the average. The height from which the water flowed was, however, much less than that which he directed; and Dr. Atthill consequently considered that any great height was unnecessary.

The result of this case Dr. Atthill thought most satisfactory, and to the method of induction he considered there could be no valid objection, the worst result being failure, and that this was very unlikely to occur, for, out of the six cases recorded by Dr. Arneth, in only one did the douche fail. Dr. Atthill preferred this mode of induction to any of the other plans recommended by authors, because no possible injury could be done by the employment of the douche bath to either mother or child; and in its application it was simple in the extreme. He concluded by remarking, that, since writing the foregoing paper, he had seen in the Lancet the details of a case in which the douche had been successfully applied by Dr. Tyler Smith of London; and the only difference that existed in Dr. Smith's case from that just related was, that alternate douches of hot and cold water were used by Dr. Smith; and that this might have been the reason why only five applications were necessary: but that this fact was by no means proved, for in one of Dr. Arneth's cases only two were required. Dr. Atthill considered, however, that it would be worth while to test the fact by further observations.

Dr. Churchill remarked, that Dr. Simpson of Edinburgh was in the habit of using effectually a simple form of syringe for such purposes, which he would consider preferable to the syphon douche, as being more simple and more easily applied; it generally brought on labour after four, five, six, or eight applications.

Dr. M'Clintock stated, that the only objection which, in his opinion, could be urged against this method of inducing premature labour was, the facility, certainty, and safety with which it could be made use of, for criminal purposes, were it generally known to the public.

### Second Meeting, Saturday, 17th of December, 1852.

Dr. Churchill read a paper on *occlusion of the os uteri*, whether congenital or acquired, distinguishing, in the latter class of cases, partial from complete occlusion.

The author illustrated each variety by cases, and entered fully into the treatment of each class; but as the paper will be published *in extenso* hereafter, it is unnecessary to enter more fully into details at present.

Dr. Edward B. Sinclair (Assistant to the Rotundo Hospital) read the following report of a *Case of Extra-Uterine Fœtation.* Catherine C., aged 36, from the country, was admitted into the chronic wards of the Rotundo Lying-in Hospital, on the 12th of May, 1852. She stated that she was the mother of four children, all of whom were alive, the youngest being seven years of age; that since the birth of her last child her menstruation had been regular up to the Christmas prior to her admission, when "it stopped," and had not since returned; that in consequence of the arrest of menstruation she fancied herself pregnant, but that, save this one, she had none of the ordinary symptoms of that state; that a few weeks after her last menstruation she experienced some pains of an obscure nature in the loins, not localized to one side in particular, and a sense of weight low down in the pelvis; and that soon afterwards she became sensible of the existence of a tumour in the lower region of the abdomen, and that this tumour appeared to increase in size gradually; that she also suffered some annoyance from a discharge from the vagina, which was sometimes profuse, and of a yellowish colour; moreover, she had frequent desire to pass urine, and some tenesmus. She frequently had recourse to medical aid in the neighbourhood of her residence without relief, and she consequently came to town for advice, being now particularly anxious about herself, inasmuch as she had latterly suffered considerably from constipation, together with great difficulty in evacuating the bladder; and in addition to these distressing symptoms, the pains, which before were only occasionally felt, and were bearable, now came on in paroxysms of great severity.

This woman on her admission presented an appearance rather healthy than otherwise, being neither of a malignant nor cachectic aspect. Upon examination the lower region of the abdomen was found to be considerably fuller than natural, and especially prominent towards the mesial line, and to the left side, in consequence of a tumour which apparently occupied this region, and extended itself almost into the left iliac fossa; that portion of the tumour nearest the mesial line was seemingly the uterus, having the shape of that organ, but increased in size to at least three times its natural bulk; it occupied a position above the brim of the pelvis, and was displaced so that its anterior surface, instead of having an aspect downwards and forwards, looked upwards and forwards, evidently pushed in this direction by something occupying the pelvic cavity, and which could be felt encroaching above the brim a little way into the left iliac fossa. On examination by the vagina, the os uteri could not be reached, but a long, firm, irregular tumour was found to occupy nearly the entire pelvic space, pushing downwards and forwards the posterior wall of the vagina, by which it was covered, and giving a

dense and semi-elastic sensation to the touch; motion was conveyed to it slightly when the tumour considered to be the uterus was moved; a catheter was passed, and it was found necessary to push it to its utmost length before it could be made to enter the vesical cavity.

On examination by the rectum, the tube of that intestine was found to be encroached upon, and its course altered in a zigzag direction. By this examination, the most depending part of the tumour could be more readily felt; and Dr. Shekleton remarked, that at this portion a sensation was conveyed to his finger, as if a small fœtal head was pushing the soft structures downwards, and he deemed it probable (but by no means decided) that this was a case of extra-uterine fœtation. A prolonged stethoscopic investigation was now instituted, but nothing was thereby elicited, which could throw additional light on the case; the areolæ were also examined, but could not have been considered as affording any evidence to direct our diagnosis, seeing that their appearance was only such as would have been expected in a woman of very dark complexion (she was a brunette) who had borne four children: there was no secretion from the mammary glands. Since the night prior to her admission, she had suffered from severe pain, which had remained constant, with recurrences of periods of increased severity; she was also tired after her journey, and wearied from want of sleep; she was consequently put to bed, and (her bowels having been freed) a full opiate was administered.

Next day (13th) it was found that she experienced no good effect from the opiate; the pain had become excruciating during the night, compelling her to rise from her couch repeatedly, and walk about the ward in a bent position; her pulse was rapid and full, and her belly very tympanitic; there was pain on pressure over the surface of the abdomen, but the pressure, when firmly applied, could be borne; the tongue was somewhat furred and rather dry; but the most distressing symptom was the pelvic pain. Stupes were applied, and turpentine and oil enemata administered, with a view to lessen the tympanitis, but with only slight benefit; the long tube was gently passed, and even that had but little effect in relieving the abdomen from the flatulent distention; we then tried to get her under the influence of opium, of which we gave her repeated doses in the solid form.

On the 14th we were informed that the night had been passed just as the previous one; she presented pretty much the same symptoms as on the day before, but she was much more exhausted from want of sleep, and unremitted suffering. All we could do was to endeavour to keep her up with mild nourishment (of which she partook sparingly), and to try and get her a little rest.

The night of the 14th was a repetition of the night of the 13th; but on the morning of the 15th I was called up by the nurse, who said, that "she had taken a sudden turn for the worse, and was fainting." I found her with a countenance most anxious and deadly

pale; she was in a state of collapse, and her skin was covered with a cold, clammy sweat. The usual methods were resorted to under such circumstances, and her pulse returned very feebly; her stomach now became irritable, and she slowly sank, death releasing her from her sufferings on the evening of the 15th, a little before eight o'clock, having endured agonizing torture, from the moment of admission, up to the time of the sudden collapse, an interval of sixty-eight hours. During this long period of suffering, there were times when the pain was more severe; and during these paroxysms of increased severity, the hand placed over the tumour, or the finger in the vagina, could detect nothing like action, and no bearing-down efforts were made during the whole of her illness.

Upon post-mortem examination, no traces of peritonitis could be discovered; some blood was extravasated near the sigmoid flexure of the colon, just as that intestine dipped into the pelvis, but by no means a large quantity; a tumour of considerable magnitude was found to occupy the pelvic space; the uterus was increased in size to at least three times that of the virgin organ, and the structures on either side of it were matted together by old adhesions; the position of the uterus was changed; it lay across the pelvis in the conjugate diameter, its fundus corresponding to the sacro-vertebral angle, and its os situated above and behind the pubis; the organ was completely out of the true pelvis, and its anterior surface, as before described, had an aspect forwards and upwards; in a situation near the left sacro-iliac synchondrosis was a small rent beneath the clot, and with the finger it was found that this rent led into a cyst, and that the cyst contained a fœtus of considerable size; the contents of the pelvis were removed as carefully as possible,—no easy matter, from the numerous adhesions of adjacent structures.

The sac was of considerable size, and the relations of the viscera thereto, were as follows:—The roof of the cyst was formed by the posterior surface of the misplaced matrix and the uterine appendages, matted by lymphy deposits to the neighbouring structures. Posterior to the sac was the rectum, and anteriorly and inferiorly the posterior wall of the vagina. In the left iliac fossa, over the uterine appendages, was a large deposition of fat, which accounted for the apparent partial occupation of that region by the tumour; on this side (the left) could be found the Fallopian tube and round ligament, also the ovary, but this latter organ was altered in structure, its stroma being changed into a yellowish-brown pultaceous mass, and its size much increased. On the right side, a portion of the Fallopian tube and round ligament was found; there was no trace of an ovary, but instead, a large fibrous cyst was seen in the position which ought to have been occupied by that body. The uterus was, as before mentioned, increased much in size, thickened as to its walls, and, on being cut into, a perfect decidua was found lining its cavity; there was no operculum, neither were any of the glandulæ Nabothi observed to be in a state of distention, either around the os or on the cervix. A careful dissection showed that the peritoneum was

spread over the roof of the cyst on either side of the uterus, whose posterior surface was stripped of that membrane, and the organ itself tilted rather to the left side, not occupying *directly* the mesial line. The fœtus was undoubtedly in the fifth month, and well formed, having a cord of some length leading to its placenta, which was of considerable diameter and thickness, and attached to the fibrous portion of the cyst on the right side. The fœtal head was inferior, and presented at that portion of the tumour which was most depending, pushing downwards and to the right the rectum, where Dr. Shekleton fancied he recognised it by the finger.

From there being no trace of the ovary on the right side, save the fibrous cyst; from the attachment of the placenta to this part of the general sac; and from the pushing of the uterus not only completely out of the pelvis, but also to the left side,—I am led to conclude that it was the right ovary that was engaged in the conception, and that the development progressed in this organ, increasing in a direction downwards; that when the ovary was over-distended, or perhaps ruptured, the layers of the broad ligament were opened out, the posterior layer being pushed backwards to the anterior surface of the rectum, to which it was glued; and that the development went on *between* the layers of the broad ligament. I am borne out by the fact of the peritoneum forming the roof of the cyst on each side of the uterus, and the posterior surface of that organ being denuded of this membrane.

In this case, the circumstances that we had to lead us to a correct diagnosis were;—the upward displacement of the uterus, and its partial increase in volume; a large body occupying the pelvic space, and one particular portion of that body conveying a vague impression to the finger, similar to that which a fœtal head would yield; and, added to these, we had some equivocal signs of pregnancy, such as arrest of menstruation, and sympathetic irritation of the bladder and rectum; but then we had no stethoscopic phenomena to guide us; although a small fœtal head *was* said to have been felt, yet a most experienced finger (Dr. Shekleton's) could not pronounce with *certainty* as to the nature of the body conveying that impression. The symptom of pain, in the early state of the case, was not localized to one side in particular, and it had latterly become constant, referred to the entire pelvic and lumbar regions, and no fœtal motion had been felt at any time. Therefore, although we thought it highly probable that this was a case of extra-uterine fœtation, we were by no means confident in our diagnosis. The pain in this case (and indeed in the generality of such cases) must, I should say, be looked upon as the result of tension of the cyst: here the tension, I presume, had arrived near its acme on her admission, when the pain became constant; and the date of rupture should be laid to the morning of the 15th, when I was called to attend her in her sudden collapse.

From the history of this woman's case and the post-mortem appearances, we must arrive at the conclusion that death was not the

immediate result of the hemorrhage, but more that of the shock occasioned by the rupturing of the cyst.

It is melancholy to reflect of what little avail treatment can be in such cases; arising, in the first place, from the difficulty in arriving at a positive conclusion; and, in the next (supposing our diagnosis to be certain), the difficulty of determining upon what indication we are to act. And the question arises, whether, with the data we had to guide us in the present instance, and taking into consideration the urgent symptoms of the case, we should have been justified in making an incision into the vaginal covering of the tumour, with a view to delivery? And again, whether, in this instance, supposing, in addition to the evidence we were possessed of, stethoscopic examination proved the existence of a fœtus,—upon the symptoms becoming urgent indicating approaching rupture, we should have been right in proceeding towards delivery by a vaginal operation, or should we merely have attended to the alleviation of urgent symptoms, and leave the patient to her fate?

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*Electro-Physiological and Pathological Researches on the Individual Action and the Uses of the Muscles moving the Thumb and the other Fingers.* Memoir presented to the Academy of Medicine of Paris. By Dr. Duchenne (de Boulogne), Laureate of the Institute of France, &c. &c.

(*Continued from Vol. XIV.*, p. 491.)

## PART II.—ELECTRO-PATHOLOGICAL RESEARCHES.

Although electro-physiological experiments have allowed me to determine the action of each of the muscles moving the thumb and the fingers, I must confess that with those data alone, and without pathological observation, I would have been unable to form an accurate idea of the important functions these muscles are called on to perform with reference to the uses of the hand, and principally the natural attitude of the fingers and thumb. These I will now endeavour to demonstrate in a series of propositions supported by pathological facts.

### A.—MUSCLES MOVING THE FINGERS.

I.—*Pathology, as well as electro-physiological experiment, shows that the extensors of the fingers are not the only muscles producing extension of the two last phalanges.*

When I undertook my electro-pathological researches, I had already noticed, that individuals in whom the muscles of the fingers were paralyzed in consequence of lead poisoning were still able to extend the two last phalanges. I had, therefore, contrary to anato-

mical data, arrived at the conclusion contained in the propositions I have just laid down, and the truth of which I have demonstrated publicly on more than a hundred individuals, without meeting with one exception.

The following is the experiment, showing extension of the two last phalanges of the fingers, notwithstanding the paralysis of the extensores digitorum, to be quite as complete as in the normal state. It is known that, in consequence of the paralysis of the extensors of the fingers, the first phalanges are bent at right angles on the metacarpus, and that in this attitude extension of the last phalanges appears to be very limited, principally if the wrist be also flexed, owing to paralysis of the extensors. Now if, having maintained, straightened out as much as possible, the first phalanges and the wrist of the patient, we tell him to bend and extend alternately the two last phalanges, we see that the latter, after having been flexed, unfold and extend as fully, and with as much strength, as if paralysis of the extensors did not exist. M. Tanquerel des Planches has, in his Treatise on Saturnine Disease, written that, owing to paralysis of their extensors the fingers cannot perform the slightest movement of extension[a]. He is right if he alludes to the first phalanges; as to the last phalanges, he has been deceived by appearances, as shown by the preceding experiment.

II.—*It is owing to the integrity of the interosseous and of the lumbrical muscles that extension of the two last phalanges is preserved, notwithstanding the paralysis of the extensors.*

Before offering a demonstration of the above proposition I must remark, that pathologists may have been induced to believe that there existed paralysis of the interosseous muscles in cases where the extensors of the fingers were solely affected, because in those cases separation of the fingers is difficult and very limited.

I will now proceed to prove, by a very simple electro-pathological experiment, that it is in reality by the means of the interosseous and lumbrical muscles that extension of the two last phalanges is effected when the extensors of the fingers are paralyzed; and with the view of rendering the demonstration more complete I shall select for example saturnine paralysis of the extensores digitorum. Let the electrical excitation be directed on an extensor muscle of the fingers so affected, and it will be seen, that while this muscle does not contract, the phalanges undergo no movement whatever[b]. But if afterwards the interosseous and the lumbrical muscles are excited in their turn, the two last phalanges are energetically extended, whatever be the degree of extension in which the first phalanges have been placed.

[a] Vol. ii. p. 49.

[b] I must remind the reader that I have shown in another work that in saturnine paralysis the paralyzed muscles have totally or partially lost their electric contractility, and that I have established thereon a diagnostic sign of this paralysis.

III.—*Paralysis or atrophy of the extensors of the fingers, renders flexion of the two last phalanges difficult and incomplete. This induces great functional derangement in the movement of the fingers in writers, painters, draughtsmen, &c.*

Consequent on paralysis of the extensors of the fingers, and principally when this affection is attended with paralysis of the extensor muscles of the wrist, flexion of the last phalanges becomes difficult, if not impossible. In these cases the wrist is constantly flexed on the fore-arm, and the first phalanges are inclined on the metacarpal bones. If the patient closes his hand the second phalanges become flexed on the first, and the third phalanges remain extended; the ends of the fingers come into contact with the middle part of the thenar and hypothenar regions. Flexion of the second phalanges is even effected without strength, as is easily discovered on telling the patient to squeeze our hand.

The impossibility or the difficulty of bending the third phalanges, and the weakened condition of the flexor movement of the second phalanx, are, in these cases, solely the result of the shortening of the flexors, owing to the position of the wrist and of the first phalanges. For if the wrist and the first phalanges be maintained in extension, the patient becomes able to bend his last phalanges on the second, as in the normal condition, and the hand closes with greater strength by the contraction of its two flexors. These pathological facts confirm the theory of the mechanism of the flexor movements of the two last phalanges of the fingers, movements requiring physiologically the extension of the first phalanges by the synergetic contraction of the extensores digitorum.

Paralysis of the extensors of the fingers does not prevent patients from writing a small hand. They can, if required, trace letters from four to six lines high, but then they experience considerable difficulty. When draughtsmen, painters[a], &c., lose the use of their extensores digitorum muscles, they lose all possibility of pursuing their profession, because they can no longer trace long lines except by the movements of flexion or of extension of the wrist or fore-arm.

The knowledge of the mechanism of movements performed by the phalanges of the fingers in directing the pen, the brush, or the pencil, &c., sufficiently elucidates these pathological phenomena; for it may be recalled to mind that my electro-physiological experiments have shown that in the adult the line traced by the fingers holding the pencil, the pen, &c., the greatest length of which is, on n average, an inch and three-quarters, is the result in great part f the movement of extension or flexion of the first phalanges. It evident that if the first phalanges remain motionless in consequence of paralysis of the extensors, the length of the line will ne-

[a] I do not allude here to the case of house-painters, who are still able to hold the brush with a solid hand, and can use it with dexterity, provided the extensors of the wrist be preserved.

cessarily be very limited. It is for this reason that individuals deprived of the action of their extensors are still able to write a fair, small hand, while painters and draughtsmen are no longer capable of managing the brush or the pencil.

IV.—*Paralysis or atrophy of the superficial and deep-seated flexors does not prevent flexion of the first phalanges, which is in such cases effected with energy by the interosseous and lumbrical muscles.*

My electro-physiological researches have shown that these muscles have only a slight action on the first phalanges, but that the interosseous and lumbrical muscles bend the first phalanges with great energy. This fact is still better demonstrated by pathology.

A man named Viotte, in the Hospital de la Charité, M. Briquet's ward, had lost the use of many muscles through progressive muscular atrophy. When this patient performed no voluntary movement, that is, when he was in a state of repose, the two last phalanges of his fore-finger and of his middle-finger retained an extended attitude so far as to be thrown back towards the first phalanges, the latter being, on the contrary, half flexed on the metacarpus. The movements of voluntary flexion and extension of the first phalanges of the index and of the medius finger were preserved, but flexion of the two last phalanges was lost under the influence of voluntary, as well as of electrical excitation. To judge of the power of the interosseous and lumbrical muscles as flexors of the first phalanges, I placed between the patient's thumb and two first fingers my own fingers gathered up together, and told him to squeeze them hard, and I then felt my hand pretty strongly pressed.

V.—*Paralysis or atrophy of the interosseous or lumbrical muscles is followed by almost complete loss of extensor movement in the two last phalanges, and of flexor movement in the first.*

It has been shown by my electro-physiological researches that the interosseous and lumbrical muscles act powerfully on the three phalanges of the fingers by bending the first and extending the two last. On the other hand, pathology has just confirmed the facts,—that the loss of power of the flexor and extensor muscles is the occasion of no derangement in the exercise of these same partial movements of the phalanges. We should also be justified in drawing from those electro-physiological experiments the conclusion that the extensors and the flexors of the fingers can replace to a certain extent the interosseous and the lumbrical muscles when the latter become atrophied or paralyzed; but I will show, on the contrary, by means of pathological facts, that the physiological action of the extensors on the two last phalanges and of the flexors on the first is extremely limited, if even it exists at all; and, consequently, that atrophy or paralysis of the interosseous or lumbrical muscles is followed by the nearly complete loss of the extensor movements in the two last phalanges, and of the flexor movement in the first.

In the year 1850, I observed at the Charité two patients affected with progressive atrophy, and with whom the disease had destroyed in a great measure the interosseous and lumbrical muscles. These two patients offered, to almost an equal degree, the following particulars:—The interosseous spaces of the atrophied hand were very hollow; electrical excitation directed on the interosseous or lumbrical muscles produced movements, scarcely appreciable, of abduction or of adduction of the fingers, and to obtain this result it was even necessary to have recourse to electro-puncture. Although the forearm was manifestly emaciated, all the muscles were detected by the means of localized electrization. When the patients were told to extend their fingers, *the first phalanges only would place themselves in extension*, being thrown backwards towards the metacarpus, and *the two last phalanges, far from being extended, were flexed, the more in proportion as the efforts of extension were greater.* In placing even the wrist into flexion the two last phalanges did not appear to extend any better. When they wished to close their hand the two last phalanges were powerfully bent, *but the first were scarcely inclined on the metacarpus;* and the result was, that these patients held but very loosely things put into their hands.

VI.—*Paralysis or atrophy of the interosseous, or of the lumbrical muscles, leads to derangements and considerable changes in the attitude of the phalanges of the fingers; and this proves these muscles to be the sole antagonists of the extensors for the first phalanges, and of the superficial and deep-seated flexors for the two last.*

In the state of repose the phalanges very slightly incline on each other and on the metacarpal bone. This attitude of the fingers is the result of a certain equilibrium between the powers having a tendency to maintain the phalanges flexed or extended, under the influence of the tonic contractility of the muscles acting on them. From the moment the interosseous and lumbrical muscles begin to be atrophied this equilibrium is destroyed, and the phalanges take a false attitude. In this case we see the first phalanges remain more or less extended on the metacarpal bone, and this change is in direct proportion with the degree of atrophy,—that is to say, with the degree of the diminished tonic contractility of the interosseous muscles; at the same time, the two last phalanges become more or less flexed on the first, under the influence of the same cause, and at last the hand takes the form of a claw, and the more so during the effort of voluntary extension.

This deformity of the hand was very apparent with the two patients affected with atrophy of the interosseous and lumbrical muscles whose cases I referred to above. It would not be possible, from these pathological facts, to have an exact idea of the degree of deformity with which the hand can be afflicted when it is completely deprived of the action of its interosseous and lumbrical muscles. In the latter instance it is not only a simple deformity of the hand we

observe, but also the reforming of the articular surfaces or of the ligaments, disorders of such a serious nature that they deprive the patient of the entire use of his hands[a].

### B.—MUSCLES MOVING THE THUMB AND ITS METACARPAL BONE.

VII.—*In consequence of paralysis of the abductor longus and extensor longus muscles, the first metacarpal bone is carried into abduction. This faulty attitude of the first metacarpal bone, and the impossibility of bringing it back to its normal position, considerably impede the free use of the hand.*

The first metacarpal bone and the two phalanges of the thumb are maintained in their natural attitude by divers powers acting on them in contrary directions. This natural attitude is the result of a certain equilibrium existing between all these powers, arising from the tonic contractility of the whole set of muscles moving the thumb. When the tonic power of one or more of these muscles is deficient, the first metacarpal bone and the phalanges are seen at the very instant to assume more or less faulty attitudes, which prove an obstacle to the free uses of the hand. Then again, the mechanism of the movements of the thumb always requires the synergetic action of a certain number of its muscles. What is, in those different cases, the relative importance of each of the muscles acting on the first metacarpal bone and on the two phalanges of the thumb?

I had entertained the hope that the electro-physiological researches I have made would have been sufficient to allow me to foresee the functional disorder that must arise from atrophy or paralysis of these muscles. I was mistaken; for among the muscles contributing to the same movements there are some which take a more or less important part, either in maintaining the equilibrium of power, of which the normal attitude is the result, or in performing the movements required by the different uses of the hand. Pathological observation alone is able to elucidate completely this important point of muscular physiology; and this is what I am about to try to establish on facts.

Owing to the natural attitude of the first metacarpal bone, the thumb is found placed on the outer side of the index, and does not interfere with the flexion of the fingers; its extremity easily reaches the pulp of the index and of the middle fingers, with which it is destined to come in so frequent contact throughout the various uses of the hand. It is to the tonic contractility of the long abductor and of the short extensor of the thumb that this attitude of the first metacarpal bone is due; for paralysis or atrophy of these muscles not only deprives the first metacarpal bone of the movements they produce, but causes it also to lose its natural attitude. For ex-

[a] [The author here relates at length some cases in illustration of the fact.—Ed.]

ample, consequent on the paralysis of these muscles, which is very common in saturnine paralysis of the fore-arm, the first metacarpal bone is always seen to take the attitude of adduction, and to be carried into a direction parallel with the carpus. The consequence of this attitude of the first metacarpal bone is, that the thumb falls in towards the palm of the hand, and the more so as the short extensor being paralyzed can no longer moderate the action of the muscles, which being inserted on each side of the first phalanx of the thumb, act as flexors on it.

We can understand to what a degree the continual presence of the thumb in the palm of the hand must impede its uses; for if in such cases the patient wishes to close his hand, his thumb is caught between the flexor muscles and the palm, if he has not had the precaution to contract previously the long extensor, which carries his thumb and its metacarpal bone into extension.

This faulty attitude of the first metacarpal bone, and the impossibility to make it perform its movements of abduction, interfere with most of the movements of the hand, principally those requiring objects to be held between the thumb and the two first fingers.

The extremity of the thumb is found to be placed, in this case, on the level of the two last fingers, and it is not possible to bring it to face the two first unless the extensor longus pollicis be made to contract; but then the thumb, the two phalanges of which are extended, draws so near to the palm of the hand, that, in order to place its extremity in contact with the extremity of the index or medius, the patient is forced to extend their first phalanges on the metacarpal bone, while the two last are flexed at right angles. This position of the fingers is most fatiguing, and takes away the dexterity of the hand.

I have observed the movements I have just described on various patients affected with this kind of paralysis of the thumb, and amongst others in the case of a lady sent to me by Professor Velpeau, and who was particularly devoted to needlework. To hold her needle between the thumb and index she was obliged to place the phalanges in the position I have just described, and she could therefore work neither quickly nor long.

When one alone of the two muscles, the long abductor and short extensor, is paralyzed, the functional derangement is far from being of so serious a nature, because these muscles can, to a certain degree, replace the action of each other.

If the short extensor has lost its action, the first metacarpal bone remains less in abduction, and becomes more flexed on the carpus; then the first phalanx becomes inclined towards its metacarpal bone to a greater extent than in the normal state, if it be the long abductor that is paralyzed, the metacarpal bone is less flexed on the carpus, and is more carried into abduction, but the first phalanx retains its normal attitude.

The former paralysis (viz. of the short extensor) deranges the uses of the hand much more than the latter paralysis (that of the

long abductor), for it is followed by the falling in of the thumb towards the palm of the hand, in consequence of the predominant action of the flexor muscles of the first phalanx, and it deprives the said phalanx of its extension, so very useful in the mechanism of certain movements of the thumb, as in the act of writing, drawing, &c. I have observed the phenomena just alluded to in individuals who, in consequence of saturnine paralysis, had lost sometimes the use of the short extensors, and at other times of the long abductor muscle.

VIII.—*Paralysis or atrophy of the long extensor muscle of the thumb is not very prejudicial to the attitude of the thumb and of its metacarpal bone, nor to the use of the hand. The functions of this muscle, as established by electro-physiological experiment, are confirmed by the pathological phenomena observed during its paralysis.*

When the extensor longus pollicis muscle is paralyzed, we observe the following. The first metacarpal bone assumes an attitude more flexed on the carpus than in the normal state; the second phalanx of the thumb always remains flexed during muscular repose, or when the latter bone is brought into abduction, and the first phalanx into extension; but this second phalanx becomes, on the contrary, extended during abduction of the first metacarpal bone and flexion of the first phalanx.

The pathological phenomena I have just laid down fully confirm the facts established in my electro-physiological researches, as regards the action of the long extensor. Thus, the exaggerated flexion of the first metacarpal bone during muscular repose is due to predominant action of the abductor longus muscle, and of the muscles of the thenar eminence, which are no longer kept in balance by their antagonist,—the long extensor. Extension of the second phalanx can be effected notwithstanding paralysis of the long extensor, this proving so far that there exists another extensor of the second phalanx (abductor brevis and flexor brevis pollicis), producing at the same time flexion of the second phalanx and adduction of the first metacarpal bone.

The flexed attitude of the second phalanx induces a slight difficulty in the flexion of the index, the latter often meeting the thumb, when the patient forgets to turn aside the metacarpal bone. The impossibility of extending the last phalanx during extension of the first occasions simply a certain awkwardness in using the fingers. The mechanism of the movements of the thumb is by no means deranged in the case of writers, draughtsmen, &c., by paralysis of the long extensor of the thumb; this being a demonstration of the fact already established by electro-physiological experiment, viz., that this muscle is not all concerned in the above function of the hand.

IX.—*Pathological observation establishes what is demonstrated by electro-physiological experiment, that neither the abductor longus, the extensor brevis, nor the extensor longus pollicis, bears an appreciable action over supination.*

The oblique direction of the fibres belonging to these muscles may have induced the belief that they would take a large part in the supinator movement, principally when their action on the thumb is spent, or when the latter is come to a fixed position. Winslow, and after him all anatomists, has attributed this function principally to the abductor longus muscle. I have already shown experimentally how far this opinion is erroneous; pathological observation in the case of the patient, Viotte, who has been the subject of many other physiological studies throughout this memoir, confirms my opinion.

Similar pathological phenomena have been often enough observed by me on other patients to allow me to state, that the muscles, the abductor longus, extensor brevis, and extensor longus pollicis, are not at all concerned in the movements of supination.

X.—*Consequent on atrophy of the muscles of the thenar eminence, the first metacarpal bone, yielding to the predominant action of the extensor longus pollicis, assumes the attitude of extension. This predominant action of the same muscle is again manifest when it contracts simultaneously with the abductor muscles of the first metacarpal bone. Therefore, the flexors of the first metacarpal bone are the necessary moderators of the extensor longus pollicis muscle during extension of the last phalanx.*

When all the muscles of the thenar eminence are paralyzed, the first metacarpal bone, carried into extension, forms anteriorly a projecting angle with the carpus, and is carried neither more outward nor more inward than in the normal state; the thumb necessarily follows the first metacarpal bone, but its phalanges remain in their normal position. This attitude of the first metacarpal bone is owing to the predominance of action of the extensor longus pollicis, which, according to my electro-physiological researches, not only extends the last phalanx, but even carries the metacarpal bone and the thumb obliquely backwards and inwards. Now, as we have seen the first metacarpal bone carried into adduction in consequence of the atrophy of its abductor muscles (abductor longus and extensor brevis), in the same manner also we might expect to see the loss of power in adduction of this very same bone give a predominant action to its abductor muscles; but pathology shows us it is not so, for in such cases we always see the extensor longus muscle carry off the first metacarpal bone in the direction of its action.

The same predominance of action in the long extensor muscle is also prevalent during voluntary movements; thus, when we tell patients affected with this kind of paralysis to put their metacarpal bone into abduction, while they extend the last phalanx of the

thumb, this metacarpal bone, obeying the action of the extensor longus, is irresistibly carried into adduction and into extension; but if the patient ceases to extend his last phalanx, while he wishes to carry his thumb outwards, the first metacarpal bone immediately undergoes its movement of abduction.

Here is another experiment elucidating the special action of the extensor longus on the first metacarpal bone. In the normal state, and when the thumb is in its natural attitude, one may extend the second phalanx of the thumb on the first one without the first metacarpal bone being moved. Well, that result is not possibly obtained by a man who has lost the use of the abductor brevis, the extensor, and the opponens pollicis, for the slightest contraction of the long extensor causes the thumb and metacarpal bone to move in totality in the direction of its action. We must, therefore, conclude that the isolate extension of the second phalanx of the thumb cannot be effected physiologically without the synergetic contraction of the abductor brevis, extensor brevis, and opponens pollicis; and this takes place in the normal state, and may be observed on one's self. Thus, when we voluntarily extend our second phalanx on the first one, the muscles of the thenar eminence contract, and sometimes even, if extension of the phalanx be made with a slight effort, the first metacarpal bone performs a slight movement of adduction under the influence of the synergetic contraction of these muscles; but if this same phalanx comes to be mechanically extended,—that is, if voluntary nervous power is not called in to extend the phalanx, there is no longer the slightest contraction to be discovered in the muscles of the thenar eminence[a].

These pathological phenomena show that the opponens, adductor brevis, and flexor brevis pollicis are, for the first metacarpal bone, the antagonists, or rather the necessary moderators, of the long extensor; for, without them, every extension of the second phalanx of the thumb would determine extension of the first metacarpal bone, and would impede the movements of opposition performed by that bone.

XI.—*Paralysis or atrophy of the short flexor of the thumb deprives the patient of the faculty of placing his thumb in opposition with the two last fingers; but, owing to the healthy state of the abductor brevis and of the opponens muscle, the thumb being enabled to place itself in contact with the two first fingers, the hand still retains its principal uses, that of writing, &c.; for instance, the preservation of the adductor muscle of the thumb allows the patient to seize with tolerable strength objects placed between his thumb and index, notwithstanding the loss of power of the other muscles of the thenar eminence.*

It is easily shown, we know by electro-physiological experiment, that the movement of lateral inclination and of flexion of the first

[a] Who would have thought, in the absence of pathological observation, that a movement so simple as the extension of the second phalanx cannot be effected, phy-

phalanx of the thumb, the result of the contraction of its abductor brevis, is more limited than that produced by its flexor brevis muscle. But what the limit of action of each of these muscles is, what their relative importance in the uses of the hand, pathology alone can answer.

The case of M. X. [the particulars of which the author details at length] proves that the flexor brevis muscle is specially destined to incline the first phalanx towards the two last fingers, while the last is extended. This function of the flexor brevis has an importance of a secondary nature, for the healthy condition of the abductor brevis and of the opponens muscle allows the patient to place his thumb in opposition to the two first fingers. Thus it is that M. X. can still use his hand with great dexterity in writing and drawing. However, his short abductor, deprived of the help of the short flexor muscle, does not flex sufficiently the first phalanx, and does not completely extend the second, that the index and middle fingers are bound to bend their third phalanges, to be able to get to the thumb. The result of the forced flexion of the last phalanges of the thumb and fingers is, that the line drawn has not the extent it should have, when M. X. writes or draws. Lastly, the simultaneous movements of adduction of the first metacarpal bone and of extension of the last phalanx are effected with less force than in the normal state.

Patients deprived of the use of the muscles of the thenar eminence always try instinctively to perform the opposing movement by means of the flexor longus muscle. They succeed in bending the phalanges, but whatever effort they make, the first metacarpal bone does not stir. This fact, as well as electro-physiological experiment, shows that the flexor longus pollicis has no action whatever on the first metacarpal bone.

The loss of power of the muscles of the thenar eminence carries with it the nearly complete abolition of the uses of the thumb. But the preservation of the adductor muscle still allows the thumb to render useful services notwithstanding. Thus we see patients hold pretty firmly objects placed between the first phalanx of the thumb and the palm of the hand. They are enabled, by contracting energetically their adductor, and by applying their thumb to the outer side of the second metacarpal bone, to reach the index, which comes to meet it by strongly bending its two last phalanges, and by throwing the first back towards the metacarpal bone.

I attended a tailor in whom the opponens, the short abductor, and the short flexor of the thumb of the left hand were atrophied, and who was indebted to the preservation of his adductor pollicis for being able to continue his trade. He held his cloth firmly enough

siologically, without the synergetic contraction of many muscles? This fact is further proof in favour of the opinion I have already expressed, and to which I intend to give more development elsewhere, viz., that voluntary nervous power rarely (and perhaps never) confines its action to one muscle; and that if it had been able to do so as electricity does, the result would have been irregular movements, and sometimes accidents, such as dislocations, &c.

between the thumb and index of the diseased hand by causing those fingers to perform the movements I have just described.

I shall now give a *general resumé* of the principal facts elucidated by the electro-physiological and pathological researches laid down in this memoir.

A. *Muscles moving the Fingers.*—I. Physiologically speaking, the extensor muscles of the fingers (extensor communis digitorum and the extensors proper of the index and little finger), are the essential extensors of the first phalanges; the flexors of the fingers (flexor sublimis and profundus) have an apparent action on the two last phalanges alone. The interosseous and the lumbrical muscles are in reality the extensors of the two last phalanges and the flexors of the first. II. The above propositions are the result of electro-muscular experiment; but pathological observation, while confirming them, allows us to fix in a still more precise manner the limit of action of each of the preceding muscles, and still better elucidates the importance of the latter, either with reference to voluntary movements, or as regards the normal attitude of the fingers. III. Thus, electro-physiological experiment seemed to establish that during voluntary movements the extensor and flexor muscles of the fingers must have an action, limited, it is true, but real,—the latter on the first phalanges, the former on the two last. Observation of diseased cases shows, on the contrary, that this action is about *nil.* IV. For individuals deprived of their interosseous and lumbrical muscles can neither extend their two last phalanges, notwithstanding the healthy state of their extensors which effect extension of the first phalanges only, nor can they bend the first phalanges, although they possess their flexor muscles, which have a real action on the two last phalanges only; on the other hand, individuals who have lost the extensors or the flexor muscles of the fingers are still able to extend their last phalanges, and bend the first with as much energy as in the normal state, owing to the preservation of their interosseous and lumbrical muscles. V. In most of the uses of the hand we see the first phalanges extended, while the two last are flexed, and *vice versâ*. It was therefore necessary that the phalanges should be independent,—the first of the flexor muscles and the two last of the extensor muscles. Now if these flexors and extensors had an equal action on the three phalanges, as it has been thought hitherto, those contrary and simultaneous movements of the phalanges (the result of the synergetic contraction of these muscles) could not be obtained without their having to overcome a mutual antagonism, which would require great expenditure of strength, and would consequently be an obstacle to manual dexterity and lightness. This antagonism happily does not exist, as it is now made very clear that, physiologically, the extensors and the flexors of the fingers have an apparent action only,—the latter on the two last phalanges, and the former on the first; and lastly, that each interosseous or each lumbrical muscle bends the first phalanx at the same time that they extend the two last. VI. The interosseous

muscles of the fingers, and the flexores sublimis and profundus muscles, are mutually moderated in the individual and tonic action they perform on each phalanx; for the interosseous muscles of the fingers are nearly the sole antagonists of the extensors for the first phalanges, and of the flexors for the two last. This proposition is deduced from the numerous pathological facts, in which we see, consequent on atrophy of the interosseous muscles, the phalanges carried in a permanent manner,—the first into extension, the two last into flexion, under the influence of the extensors and of the flexors of the fingers. This morbid attitude of the phalanges is the cause of serious derangement, such as deformity of the articular surfaces, subluxations, &c. &c., and gives to the hand the form of a claw, more inconvenient than useful.

B. *Muscles moving the Thumb.*—I. The action and the uses of each of the muscles moving the first metacarpal bone and the thumb have been hitherto either overlooked or wrongly defined. II. The long abductor muscle of the thumb is at the same time a flexor and an abductor of the first metacarpal bone. III. The short extensor is the real abductor of the first metacarpal bone; its action on the first phalanx is very limited. IV. The long extensor extends the two phalanges of the thumb, and simultaneously carries its first metacarpal bone, and consequently the thumb itself, obliquely backwards and inwards. These three movements are effected simultaneously, and with equal energy. V. Electro-physiological experiment, as well as pathological observation, shows that the abductor longus, and extensor longus and brevis pollicis are completely unconnected with the movements of supination of the hand. VI. The muscles of the thenar eminence going from the external side of the first metacarpal bone, and to the first phalanx (the opponens, abductor brevis, and a portion of the flexor brevis), place the first metacarpal bone in flexion and adduction. In this attitude of the first metacarpal bone the thumb finds itself in relation (in opposition) with the index only. This is the limit of action of the opponens pollicis; but owing to the muscles that go to the outer side of the first phalanx (abductor brevis and flexor brevis muscles), the first phalanx of the thumb is flexed while it inclines on its external side and rotates on its longitudinal axis from without inwards, while the last phalanx is extended in such a manner that the thumb can successively place itself in opposition with the three last fingers. VII. The adductor of the thumb (we must comprehend in this muscle the muscular fasciculi going to the internal sesamoid bone, because they have the same action) draws the first metacarpal bone towards the second, outside and in front of which it places it when arrived at the maximum of contraction. This muscle can, therefore, make the first metacarpal bone perform four movements in contrary directions,—viz., a movement of adduction if this bone is previously placed outwards; a movement of abduction when it is at the highest point of adduction; a movement of extension when it is flexed; and lastly, a movement of flexion if it is placed in extension by the extensor longus pollicis. The adductor of the thumb performs

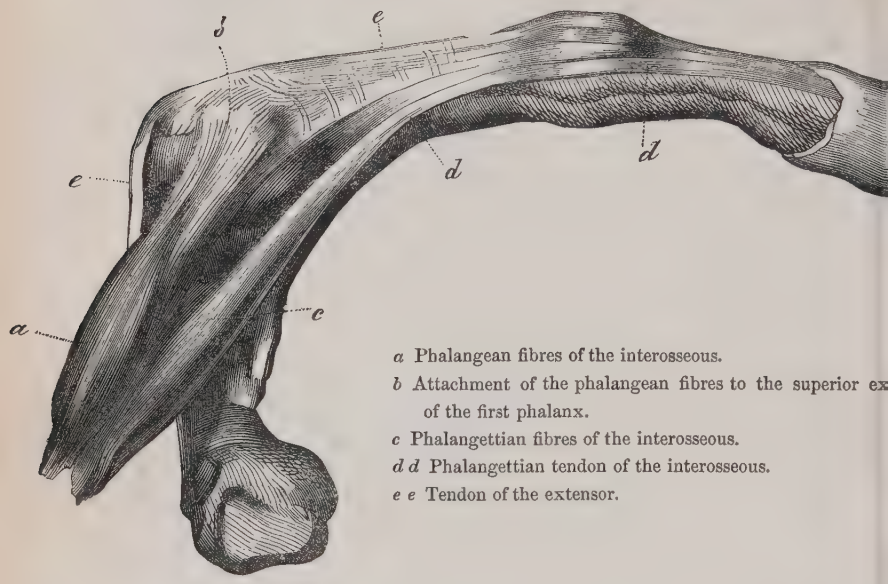
flexion also, like the abductor brevis and the flexor brevis muscles, on the first phalanx of the thumb, while it extends the last; but it inclines the thumb on its internal side, and gives it a rotatory movement on its longitudinal axis, in a contrary direction to the abductor brevis and flexor brevis. VIII. The muscles moving the thumb are not solely destined to make its first metacarpal bone or its phalanges perform various movements; they also maintain them in their natural attitude by means of their tonic contractility by a sort of mutual equilibrium, as pathology clearly shows. IX. If the abductor longus and extensor brevis be paralyzed or atrophied, the first metacarpal bone is carried into a continued adduction by the opponens, abductor brevis, and flexor brevis. X. The impossibility of carrying the first metacarpal bone into abduction, and slightly into flexion, carrying the hand of those offices in which objects require to be held between the thumb and index; and this shows clearly that the abductor longus and extensor brevis are principally destined to place the thumb in connexion with the index. XI. If atrophy has destroyed the opponens, abductor brevis, and flexor brevis pollicis, the first metacarpal bone is then acted on by the abductor longus, extensor brevis, and extensor longus pollicis; but it is solely the tonic contractility of the extensor longus that it obeys, for it places itself in the attitude given by the latter,—viz., backwards and more inwards than if it had been moved by the abductor longus and extensor brevis pollicis muscles. XII. This predominance of action of the long extensor over the long abductor and short extensor equally exists during voluntary movements; for instance:—1. When the muscles of the thenar eminence are destroyed, abduction of the thumb cannot be performed unless the extensor longus does not act during the contraction of the long abductor and short extensor. 2. In the normal state, the simple voluntary extension of the last phalanx by this muscle (the extensor longus) requires the synergetic contraction of the abductor brevis, flexor brevis, and opponens—a contraction without which the first metacarpal bone would inevitably be carried into extension. XIII. The facts laid down in propositions XI. and XII. establish that the opponens, abductor brevis, and flexor brevis pollicis, are for the first metacarpal bone the necessary moderators of the extensor longus muscle during extension of the second phalanx by the latter muscle. XIV. It is evident from the facts laid down in propositions IV., VI., and VII., that the second phalanx of the thumb has three extensors which cannot replace one another mutually, for each individual extensor acts in a contrary direction on the first metacarpal bone and on the first phalanx; for instance:—1. The same muscle (extensor longus pollicis) extends at the same time the first metacarpal bone and the two phalanges of the thumb. 2. The same muscle (adductor pollicis) brings the first metacarpal bone near the second, while it bends the first phalanx, inclining it on its outer side, causing it to rotate on its axis from without inwards, and placing the second phalanx in extension. 3. The same muscle (abductor brevis and flexor brevis pollicis) bends the first metacarpal bone on the carpus, and the first

phalanx on the first metacarpal bone, inclining it on its external side, and giving a rotatory movement on its axis from within outwards, while it extends the last phalanx. XV. The muscles producing the same extension on the second phalanx of the thumb have special uses; thus:—1. The long extensor principally concurs in depressing the thenar eminence, while it extends the two phalanges of the thumb, as when the hand is opened widely. Paralysis or atrophy of this muscle does not induce great derangement in the uses of the hand, for it remains quite foreign to the movements directing a pen, a pencil, &c. 2. The short abductor and short flexor are destined to those uses requiring the simultaneous movements of abduction of the first metacarpal bone, of flexion of the first phalanx of the thumb, and of extension of the second phalanx,—movements in contrary directions, and very frequent, generally accompanying the similar movements of the fingers under the influence of the interosseous and lumbrical muscles, as in the case of draughtsmen, &c. &c., when they draw a line postero-anteriorly. It is conceivable that the loss of those muscles (short abductor and short flexor of the thumb) must deprive the hand of its most important uses. 3. The abductor muscle of the thumb is destined to bring towards the index the thumb, the second phalanx of which it maintains extended, while it gives the first phalanx a lateral movement, in a contrary direction to that imparted by the action of the short abductor and short flexor. Without this muscle objects placed between the thumb and the fingers cannot be held firmly.

NOTE BY THE EDITOR.

[Dr. Duchenne appends, as a sequel to his researches, an anatomical and historical disquisition on the muscles of the thumb and fingers, in the commencement of which he states that both MM. Cruveilhier and Bouvier have reported favourably on his views, and confirmed them by microscopical and anatomical researches. The latter anatomist has described and figured from recent dissection an hitherto not admitted arrangement of the interrosseous muscles, and of the muscles of the thenar eminence, which fully bear out the action assigned to them in the foregoing memoir. The accompanying woodcuts,—the originals forwarded by the author for illustrating his paper in our Journal,—exhibit, 1st, that the fibres attributed to the tendons of the long extensors belong in great measure on the side of the fingers to true ribbon-like tendons, terminating the interosseous and lumbrical muscles, single or united; 2nd, the insertion of the interosseous muscles by a very short tendon on the first phalanx; and 3rd, that all the muscles of the thenar eminence, with the exception of the abductor brevis pollicis, send aponeurotic prolongations, which bind them to the extensor tendon of the thumb, which aponeurotic expansions not only terminate in the tendon of the extensor, but also attach themselves in a direct manner on the upper extremity of the second phalanx.]

FIG. 1.—Ring finger of the right hand, with its dorsal interosseous or adductor.

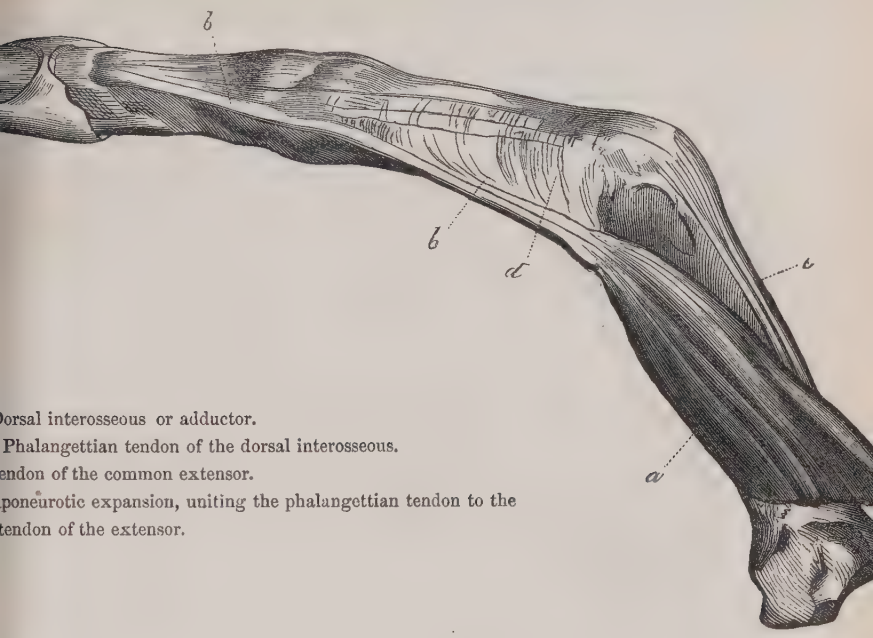



*a* Phalangean fibres of the interosseous.
*b* Attachment of the phalangean fibres to the superior ex
of the first phalanx.
*c* Phalangettian fibres of the interosseous.
*d d* Phalangettian tendon of the interosseous.
*e e* Tendon of the extensor.

FIG. 3.—Thumb seen from its inner aspect

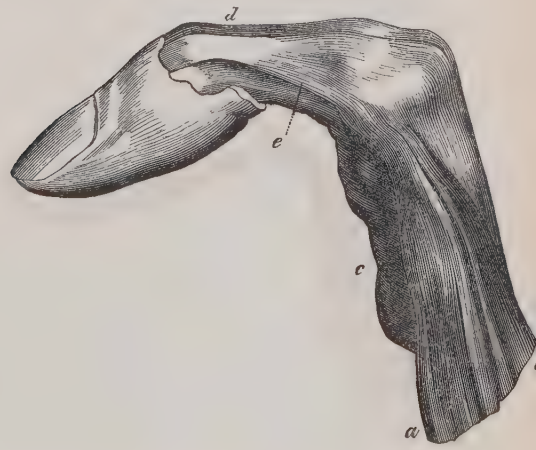
*a* Adductor muscle.
*b* Tendon of the extensor.
*c* Aponeurotic expansion going t
tendon of the extensor.

Fig. 2.—Ring finger of the right hand, with its dorsal interosseous or adductor.




Dorsal interosseous or adductor.
Phalangettian tendon of the dorsal interosseous.
endon of the common extensor.
poneurotic expansion, uniting the phalangettian tendon to the tendon of the extensor.

Fig. 4.—Thumb seen from its outer aspect.




*a* Short abductor muscle.
*b* Opponens pollicis.
*c* Extensor portion of the short flexor.
*d* Tendon of the extensor.
*e* Aponeurotic expansion of the short abductor going to the tendon of the extensor.

*Case of Aneurism of the Abdominal Aorta.* By Cathcart Lees, M.B., Physician to the Meath Hospital, &c.

A bricklayer, aged 33, was under the care of Dr. Head for a tumour in the abdomen, which that physician diagnosed to be aneurism of the aorta; but as a very intelligent surgeon, who had seen the case, considered it to be caused by an enlarged kidney, Dr. Head kindly asked me to see the patient. He presented a very pallid and emaciated appearance, being confined to bed with paralysis of motion and sensation of the lower extremities; there was retention of urine also, and that drawn off by the catheter was highly alkaline. The right hypochondrium was occupied by a large, smooth tumour, passing from underneath the false ribs, not accompanied by any pulsation; but immediately below this, another tumour, the size of a large apple, could be felt, which gave a feeble pulsation without any murmur. Percussion caused a dull sound over both of these tumours, except at the inferior margin of the lower one. The man complained chiefly of pain in his back, which he described as a constant boring pain confined to one spot, but he also suffered from severe paroxysms of pain, which radiated from that spot round the ribs. A large, soft, projecting tumour occupied the place of the seventh, eighth, and ninth dorsal vertebræ, communicating a distinct, single diastolic pulsation, but without any murmur or fremissement; the inferior half of the right side of the chest was dull on percussion, and no respiratory murmur could be heard over that part. He did not complain of cough, nor had he suffered from dyspnœa, dysphagia, or palpitations; the impulse of the heart and its sounds were feeble but regular, and without any abnormal murmur; the pulse was equal in both wrists. He stated that he had strained his back nine years ago in lifting a heavy weight, but he did not suffer from it until within the last two years, since when he had been affected with constant pain in that part. This was at first treated as syphilitic, and then supposed to depend on caries of the vertebræ, for which issues were advised. He gradually lost the use of the lower extremities, and four months ago he first perceived the swelling in the right side, which was supposed to be caused by an enlarged kidney, as at that period the urine was constantly loaded with lateritious sediments. Shortly after this the tumour in the back was observed, and this gradually increased to the extent described. A few days before his death Dr. Head had ascertained the dulness and absence of respiration over the right side of the chest. The patient's death occurred suddenly two days after I saw him, and Dr. Head, having obtained the consent of the friends, asked me to assist him in making the examination of the body. On opening the abdomen, we found the liver filling the right hypochondrium, being pushed forwards and downwards, and from beneath its under edge there appeared a large tumour, passing into the right iliac fossa, partially uncovered by the intestines, as was also the right kidney, which was pushed forwards, and lay to its

outer side: this tumour passed up along the spine, behind the right crus of the diaphragm, and had burst into the right pleura. On tracing up the aorta, a large circular opening, with an elevated, everted edge, came into view, discovering an aneurism, which originated just between the crura of the diaphragm, immediately above the cæliac axis, and had made its way beneath the pleura, covering the diaphragm on the right side; it had then dissected its way laterally between the muscular coat of the diaphragm and the pleura, having the former for its lower, and the latter for its upper boundary, so that it was difficult to say whether the aneurism was above or below the diaphragm, being really situated between its distended layers; and here the bodies, and even the cartilages of the eighth and ninth ribs, were completely removed, so that the spinal cord, encased in its membrane, lay quite exposed, and in actual contact with the contents of the aneurismal sac, which chiefly consisted of firm coagula. The right pleura contained a quantity of coagulated blood; the heart was perfectly healthy.

There are some interesting points connected with this case. In the first place, the insidious course of the disease, the primary cause dating so far back as nine years; next, the difficulty of diagnosis, as, although the patient was attended and carefully examined by several experienced practitioners during nearly two years, yet the real nature of the disease was not even suspected until he came under the care of Dr. Head, who made his diagnosis from the abdominal tumour, combined with the peculiar neuralgic pain in the back,—the great importance of which, as a diagnostic symptom of aneurism of the abdominal aorta was, I believe, first put prominently forward by Dr. Law, in his valuable paper in the twenty-first volume of the former series of this Journal. The absence of any bruit in the tumour was important, as the experience of the professsion in Dublin proves it to be almost invariably met with in aneurism of the abdominal aorta,—a fact of great value, when considered with reference to the same sign as diagnostic of aneurism in the thoracic aorta. In this case its absence was probably owing, first, to the situation of the aneurism in the tendinous canal, between the crura of the diaphragm; and secondly, to the sac being filled with fibrinous deposits. It is curious how life could be carried on with such extensive destruction of the vertebræ and cartilages, as there was really no bony protection for the spinal cord in that situation, it being merely covered by its membranes. The rupture of the sac at its upper part, contrary to the direction of the current of the blood, is also worthy of notice, and moreover, the absence of cough or dyspnœa,—although the physical signs indicated effusion into the right pleura for some days previously to his death,—and which was probably owing to rupture of the aneurism having taken place, and blood being effused into the pleural cavity, as I have seen cases where patients have lived some days after rupture of an aneurism into the pleura, and even into the peritoneum.

*Case of Oblique Inguinal Hernia operated on.* By ALLEN FRENCH, F. R. C. S. I., Medical Attendant of the Ballygar Dispensary, County Galway.

SUNDAY, 10th of October, 1852, I was called to John Martin, a man of a good constitution, aged about 64, who was labouring under strangulated oblique inguinal hernia of the right side. Strangulation had occurred on Friday, and from that time up to the period when seen by me, his sufferings had increased. The symptoms of a strangulated hernia were—painful tumour in the region of the right inguinal canal, measuring between five and six inches in length, elastic and moveable; no evacuation from the bowels since the preceding Friday; constant vomiting; the pulse moderately full and frequent; and tongue coated. He had taken unavailingly some aperient medicine, followed by turpentine enemata.

The taxis having been perseveringly, but unavailingly, employed for a considerable period of time, I then had recourse to bleeding, tobacco enemata, and the warm bath. After having in vain used the ordinary means of reduction, I considered an operation to liberate the intestine necessary, and demanded an assistant. While waiting for his arrival, I considered it a fair case to try the mode of reduction used in India[a]. I got a folded sheet carried round the lower part of the abdomen, twisted on itself in front, and again on the sides. I gave the extremities of the sheet to two men, standing on chairs, one on either side, to pull them quietly upwards, while a third held the feet; I then, standing behind him, used the taxis, but without any beneficial effect.

When my friend, Dr. Peyton, Surgeon to the County Roscommon Infirmary, arrived, after satisfying himself that there was by this time no possibility of reducing the hernia but by the operation, he consented to aid me in its performance. Having procured sufficient light, we had the patient placed on a table, about 10 o'clock at night. The hair being previously shaved from the parts, I commenced by firmly grasping the tumour with the left hand, and making a free incision through the integuments along its whole extent; I then raised the fascia with a forceps, and having made a small opening in it with a scalpel, introduced a director, and divided the fascia to within one inch of the abdominal ring, and in the same manner downwards to the end of the incision, and so continued cutting with the director and scalpel until I came down on the sac. We found it necessary to divide the tendons over the ring in the same manner. Having then insinuated the finger between the sac and the abdominal parietes, a band of tendinous fibres was felt, about one inch above the ring, which was divided with a blunt-pointed bistuory.

The hernial sac was now cautiously opened, when a quantity of serous fluid, tinged with blood, escaped, and on enlarging the aperture, a portion of intestine was immediately exposed; the finger was

[a] See Medical Press for May 26th, 1852, page 329.

pushed in the direction of the stricture, and it was divided with a probe-pointed bistoury. The bowel was now cautiously pushed into the abdomen, and the wound closed. We then secured the parts with four sutures, adhesive straps, a pledget of lint and roller, and had the patient put to bed.

The next day I found him free from pain, and the bowels were relieved twice. I ordered him four grains of calomel and four of Dover's powder, to be taken night and morning. Second day, I dressed the wound; there was very little discharge from it. On the sixth day the sutures were removed; and on the eighth and tenth days, I again dressed the wound, which was nearly closed by healthy granulations. The particulars of the treatment are of very little interest. After the fourth day there was a tendency to diarrhœa, for which I gave him light chicken-broth and arrow-root, which checked it. After the eighth day the appetite returned, and I could with difficulty persuade him to keep quiet, as he wished to be up and going about. On the twelfth day, I gave him a truss, which he found a necessity for, as he had been in the habit of wearing one for some time. It however, had not fitted well, and did not suffice to keep up the hernia, which at the time of the operation had existed for six years.

In a case like the present, where the symptoms are so urgent that decision at once is often necessary, to make known the result may be of some importance, the more especially as many conflicting opinions are still entertained as to treatment in similar cases. It is stated, that "the employment of chloroform should supersede the necessity of the warm bath, bleeding, and tobacco, in the treatment of strangulated hernia." From my experience of these remedial measures in hernia, I would not like to give them up for any anæsthetic agent. Tobacco, when used judiciously, and in a sufficient quantity, will produce that degree of complete relaxation requisite for success in the employment of the taxis, and moreover, it acts on the urinary organs, and removes flatus from the bowels: all which are most desirable, should it ever be necessary to operate.

In this case, after giving him the tobacco enema, the discharge from the bowels was accompanied by some flatus, and the kidneys acted, and, from the relaxed state the poor man was in at this time, I am sure if it were possible I should have succeeded in returning the intestine by the hand. Petit and Aston Key object to opening the sac, lest peritonitis should follow from exposure of the bowel and entrance of air into the abdominal cavity. Here it was necessary to open the sac, introduce the finger, and divide the stricture before the intestine could be returned; but we were cautious, and divided only as much of the sac as was necessary to liberate the intestine, and even then there was some difficulty in returning the bowel.

There was no appearance of general inflammation in the sac or intestine when we operated and exposed them; neither peritonitis nor any other bad consequence followed.

*Notice of the Efficacy of Chlorate of Potash in Ulcerated Stomatitis and Cancrum Oris.* By J. H. BABINGTON, M.B., F. & L.R.C.S.I., Medical Officer of the Coleraine Union Workhouse.

ON reading Dr. Duncan's practical paper, in the last Number of this Journal, on the use of mercury in cancrum oris (which I by no means in any way question the efficacy of, or the good results which have followed the mercurial treatment recommended by Dr. Duncan), my recollection was called to an epidemic of ulcerative stomatitis, that occurred in the Coleraine Union Workhouse in 1849, in which I used chlorate of potash with great success.

The symptoms were as follows: The lips, gums, and lining membrane of the cheeks, red, swollen, and tender to the touch; tongue swollen and indented by the teeth, covered over the surface with a foul tenacious coating, and in some places ash-coloured sloughs. There was great pain when the cheeks were moved, touched, or any food introduced into the mouth, together with considerable general fever, and the secretions vitiated.

The first morning I observed the disease two only complained; next day three more cases were presented; and on the fourth morning I had fifteen on the sick list, all from amongst the boys in the workhouse.

The treatment adopted was a mild aperient of rhubarb and magnesia, and the administration of chlorate of potash, dissolved in water sweetened with syrup, in doses of four grains every fourth hour; the mouth was also washed with a weak lotion of solution of chloride of soda. They all recovered in about six days. I treated one case with alteratives and tonics, and it was three weeks before it got quite well; thereby proving the efficacy of the chlorate of potash.

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*Case of Amputation at the Shoulder-Joint.* By J. H. BABINGTON, M.B., F. & L.R.C.S.I., Medical Officer, Coleraine Workhouse.

JOHN DRUSMORE, aged sixteen years (admitted into the Coleraine Union Hospital, November 1, 1851), was working at a flax-mill, and whilst attempting to raise the rollers of the mill, to disentangle therefrom some flax which had got round the axle, he stretched his hand too far towards the rollers. The sleeve of his jacket was caught and his left arm dragged into the machinery. The fingers sustained some trifling injury; the wrist-joint was smashed, and all the bones entering into it comminuted, but without any external wound. The elbow-joint was opened by a large lacerated wound, and the ends of the bones fractured and crushed. The axilla was laid open by a large lacerated wound, extending under the humerus, from one border of the axillary space to the other; the latissimus dorsi and pectoralis muscles were torn asunder, but their attachments to the humerus remained perfect, yet their lacerated and mangled fibres hung loosely out of a wound, through which the fingers could be

passed readily under the scapula; the deltoid muscle was sound and uninjured; there was no hemorrhage, and the large vessels appeared to have escaped.

It was at once determined to remove the arm at the shoulder-joint. In the performance of the operation I was kindly and ably assisted by my friends Mr. Neill, Surgeon, R.N., who commanded the subclavian artery, as it passes over the first rib, and by Dr. Macaldin, both of whom concurred in the propriety of the operation.

The patient being placed under the influence of chloroform, a flap was formed from the deltoid muscle, which, being dissected up and the joint entered, the humerus was disarticulated, the knife passed behind it, and the humeral attachments of the lacerated muscles were divided, and the limb removed. The arteries, three in number, were secured, and the patient being still under the influence of the chloroform, all the torn portions of the muscles were pruned away. There was no hemorrhage whatever during the operation. The flap of the deltoid was laid into its place, and, as far as practicable, the edges of the wound brought together. Owing to the great destruction of the soft parts underneath in the axilla, perfect contact was impossible; we therefore trusted to the wound healing by granulation.

It was some hours before the patient returned to his sensibility or was aware that his arm had been removed.

He recovered without any unfavourable or remarkable symptom, except that the ligatures did not separate for six weeks, when all the wound had healed.

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*On the Use of Collodion in Small-Pox and Erysipelas.* By Dr. Christen, Assistant Physician to the Prague General Hospital.

It has long been a desideratum in medical practice to prevent, if possible, especially in females, the scars usually left by small-pox on the face and on other exposed parts of the body. To this end the most dissimilar means have been tried and recommended, and have been again, in course of time, laid aside, as at least useless, if not directly injurious.

Very recently it was thought that a preservative, capable of meeting all requirements, had been found in collodion. Nor was this agent long without receiving its share of commendation. Although many considerations occurred *a priori* to the mind against its use, it could not be directly condemned, in opposition to the testimonials in its favour, without repeated and extensive trials of its efficacy in cases of various intensity. The never-failing cases of variola in the Prague General Hospital, which were particularly numerous in the month of May, afforded sufficient opportunity of testing the value of collodion in many points of view.

The collodion was in most cases employed in the stage of papu-

lar development (stippchenbildung), the earliest period when, in general, the diagnosis of variola could be made with certainty. It was applied over a greater or less extent of the face and extremities, and in two cases the entire face was smeared with it. The results were as follows:—As the collodion dried and shrank, the redness of the papulæ diminished, the slight œdema of the skin disappeared, and the covered and adjoining parts became tense. With the progressive development of the pustules, and the accompanying increase of infiltration of the skin in their immediate neighbourhood, this tension became intolerable, especially in those cases in which the entire face was covered, and so annoyed the patients, that means had to be taken before the termination of the variola for the partial or complete removal of the collodion. The further development of the variola was neither prevented nor lessened, but only modified, by the papulæ under the layer of collodion forming even points of pus, which, as the suppurative process advanced, became confluent, and in severe cases formed a nearly uninterrupted layer. The evaporation of the liquid parts was so impeded that fluid pus was still found under the collodion, when the pustules on the other parts of the body had dried and crusted.

In those cases in which the collodion had to be partially or entirely removed on account of the intolerable tension, capillary extravasations took place soon after the pressure was removed, in the form of numerous ecchymoses under the epidermis, loosed from the corroded corium, which soon assumed a dark colour, and gave the patients a still more repulsive appearance. The suppuration had, as a natural consequence of the prolonged retention of the pus in the fluid state, spread more broadly and deeply; the scars, instead of being prevented as was intended, were more extensive and deeper, and were plainly perceptible even in those lighter cases, in which the surrounding parts, which had not been smeared with the collodion, presented scarcely a trace of a cicatrix.

The collodion also appeared, especially when extensively applied, to exercise an unfavourable influence on the general course of the disease. That it must, by suppressing the function of the skin, have an absolutely injurious effect when its application is general, and uninterruptedly kept up, is, according to physiological laws and our experience of the operation of analogous influences on the human organism, as clear as possible. But the arrest of evaporation, and the great extent of matter under the covering of collodion, appears to be of still greater importance, promoting as it does in a great degree the absorption of the pus, and favouring extremely that state of pyœmia which is so apt to occur when the eruption is extensive.

From the foregoing observations, thus briefly related, the employment of collodion in small-pox consequently appears to be not merely useless, but also directly injurious and inadmissible. In mild cases of variola, from which the favourable results that have been recorded appear to be derived, its use is superfluous, and in severe cases, with extensive eruption, from which our present conclusions have been chiefly drawn, it is absolutely prejudicial and objectionable.

As to the influence of collodion on the course of *Erysipelas*, the cases I have observed justify the following remarks:—In symptomatic erysipelas, depending on internal causes, its effects appear at first to be very surprising: the redness disappears; the swelling and pain become less, and a feeling of tension and numbness occurs in the parts which have been smeared with the collodion; nevertheless, the general phenomena, and the complications which may be present, continued unaltered, and in a short time, sometimes only a few minutes, the erysipelas commences to pursue its course unchecked, in the neighbouring or in distant parts of the body, even when the repeated application of the collodion follows closely on its track. The effect then is, like the remedy itself, merely local and transient. Collodion fulfils the indication as little as other means of demarcation which have been recommended, as for example, cauterization with nitrate of silver or with acids, inunctions with mercurial ointment, &c. Facts, apparently of an opposite nature, in my opinion probably refer to cases in which the collodion was applied at a time when the process was about to terminate, or where, without its employment, the erysipelas would not have advanced further.

The employment of collodion appears to be more useful in erysipelas arising from local causes. In erysipelatous wounds, ulcers, slight burns, erysipelas from insolation, and similar cases, its use is decidedly advantageous. Although I have not had the opportunity of making many observations on this part of the subject, I will briefly communicate the results I have obtained. The immediate effect is the same as in symptomatic erysipelas: the redness, swelling, pain, and vesication rapidly disappear, and depots of pus do not so readily form. In a case of gangrenous erysipelas of both eyelids, the repeated and tolerably extensive use of collodion on the surrounding parts, after the gangrene was arrested and the greater part of the gangrenous portion had separated, speedily removed the infiltration of the edges and a burrowing abscess, as slight as could well be expected in that situation. In a case of erysipelas with very considerable vesication on the backs of both hands and reaching to the wrist-joint—the consequence of severe insolation—the collodion was, for the sake of comparison, abundantly applied to one hand, while the other was merely treated with cold fomentations. On the application of the collodion the pain immediately ceased, and was replaced by a feeling of numbness and stiffness. The diffused vesicles and the very considerable œdema rapidly subsided, and the course of the disease was thereby much shortened; while the vesication on the other hand increased in size and extent, and when emptied filled again, the œdema subsided but very gradually, and the pain was very much aggravated by the exposure of the corium. On the fifth day after the patient's admission into hospital, the hand which had been treated with collodion, and in the intervals with cold applications, had regained its normal volume. The pain, œdema, and blisters had disappeared, and nothing remained but a slight stiffness of the hand and a parchment-like dryness of the epidermis, while the other hand

was, so late as the tenth day, considerably swollen and painful. In the instances I have mentioned, and in slight burns, the use of the collodion has proved of decided advantage, and it deserves to be recommended in similar cases.—*Vierteljahrschrift für die praktische Heilkunde*, Band 4, 1852. Originalaufsätze, p. 92.

[The above account of the trial of collodion on an extended scale is highly interesting at present, when its local therapeutic action in many cutaneous affections has been so much vaunted by some. That it failed in Dr. Christen's hands in the treatment of small-pox is manifestly due to the injurious effects resulting from the uneven contraction and compression of the integument caused by the rapidity of evaporation of the ether in which the gun cotton is dissolved to form collodion[a]. And this is fully proved by the beneficial effects consequent on the use of the solution of gutta percha in chloroform for the same purpose, as reported by Dr. Graves in our last volume.—Ed.]

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## *On Induration of the Areolar Tissue (Scleroma), in New-born Infants.*

By Professor Pastorella.

Induration of the areolar tissue is a disease almost peculiar to foundlings. It very seldom occurs before the fourth day after birth, rarely after the fifteenth, and never later than the fourth week. It comes on unexpectedly, or its approach is announced merely by an icteric discoloration of the skin. Suddenly the legs become slightly reddened, their temperature falls; there is no indication of pain, and the tissues gradually attain the hardness of marble. The affection subsequently extends in a similar manner to the arms, abdomen, and thorax, so that the patient in a short time becomes entirely rigid. The skin meanwhile has become yellow; the voice is shrill and screaming; the appetite fails; the bowels are confined; difficulty of breathing supervenes, followed by coma, and death ensues between the tenth and fifteenth day of the malady. Inflammation of the umbilical ring, and erysipelas of the genitals and inside of the thighs, are two complications: the former an unfavourable and not unfrequent symptom; the latter of rarer occurrence, but an almost infallible presage of death.

Various causes have been assigned as predisposing to this affection. At one time it has been attributed to premature birth, and to the imperfectly developed state of the child; at another to a cachectic state of the mother, or to the impure air of the hospitals; but more frequently it has been supposed to arise from the action of cold. Professor Pastorella, Physician to the Foundlings, near Trento, seeing the disease in children born at the full time, of stout and healthy mothers; finding the air in the charitable institutions purer, and the provisions against cold much better than in the dwellings of the poor, where he never happened to meet the disease; and more-

[a] Neligan's Treatise on Diseases of the Skin, p. 408. 1852.

over, observing it to be particularly prevalent in the months of May and August, cannot attribute the occurrence of scleroma to any of the above-mentioned causes, and candidly acknowledges his ignorance of its source. However he suggests that the causes of the disease might be found in the numerous methods employed by the mothers during pregnancy to conceal their state, or to destroy the fruit of their illicit amours.

Scleroma usually presents itself under a twofold aspect: at one time it is œdematous or serous, the integuments being moderately firm and infiltrated with serum, which flows abundantly from incisions made in them; at another it is solid or adipose, the skin being more firm, remaining dry when cut, and appearing to be infiltrated with an exudation not unlike the congealed fat of animals. In both forms Gardien found the glands and lymphatics constantly enlarged. The author has seen, in addition, venous congestion in the membranes of the brain, the lungs, and the liver, and the right side of the heart gorged with black and uncoagulated blood; but he never found either pulmonary hepatization or signs of inflammation in the gastro-intestinal tube, nor did he meet a case in which there was an open foramen ovale.

As to the pathology of the disease, writers may be divided into two classes,—those who consider the areolar induration to be primarily an affection of the skin; and those who consider it to be merely secondary to some internal lesion. Among the former, some regard scleroma as a cutaneous phlogosis; others consider it to be a condition not unlike simple œdema; and many, adhering to their etiological view of the subject, believe it to be nearly allied to frostbite; while of writers of the second class, some attribute it to hepatic disease; others to intestinal or pulmonary inflammation; and some to retarded closing of the foramen ovale. The author, observing that the first symptoms appear in the skin, without being preceded by disturbance of any function, and believing that so profound an alteration could not be induced by the trifling lesions met with in the viscera, adopts the views of those who believe it to be a local and primary disease of the integuments. He does not, however, in the absence of heat, pain, and suppuration, view it as as an inflammation of the areolar tissue; nor does he, with others, regard it as a simple œdema; but, led by the results of post-mortem investigations, by the analogy of its symptoms to those of other diseases, and by the argument *a juvantibus*, he considers it to be an affection of the peripheric portion of the lymphatic system.

Various plans of treatment, adapted to the several pathological views just now enumerated, have, as might be expected, been proposed. Those, and they are the greatest number, who regard scleroma as a congelation, have wholly directed their endeavours to the restoration of the natural warmth, and to the re-establishment of the capillary circulation. Those, on the other hand, who consider it to be a secondary affection, adopt a treatment calculated to remove the

internal congestions which have been proved to exist. The arguments advanced on both sides are, as usual, very numerous. The author states, that he patiently, and during a long time, tried the various plans recommended, and that he invariably found, to his great disappointment, that three cases out of four terminated fatally; from which he inferred that all these methods were either useless or injurious. Then, laying aside all interference, he found that the number of deaths was neither increased nor diminished, which proved at least the inefficacy of the means he had formerly employed. However, disliking the part of an inactive observer, he tried a method suggested to him by his view of the nature of the malady, and which he has since read of as having been advantageously followed by others. He rubbed the thighs, abdomen, and chest of his patients with one drachm of mercurial ointment, and subsequently washed it off by means of a bath of warm milk, repeating the inunction and the bath every twelve hours. Under this plan, which he has now tried for many years, he has not had to deplore the loss of more than one-third of his little patients; he has seen no bad effects from the treatment; and states that the resolution generally commences with the third application of the ointment, and that the fifth is rarely necessary.—*Gazzetta Medica Italiana Federativa Toscana*, 1852, p. 228.

[The above affection is extremely rare in these countries, almost never occurring except within the walls of an hospital, and consequently, although it has been described under the name of skin-bound disease, by Denman, Underwood, Maunsell and Evanson, &c., all mention of it has been omitted by some of our later systematic writers on the diseases of children. In the Dublin Lying-in Hospital, its appearance has generally taken place during the prevalence of puerperal fever among the women, and of trismus nascentium among the children. Hence it has always been considered to be connected with an unhealthy state of the atmosphere of the hospital, and although the author of the foregoing paper has expressed an opinion that the air in the dwellings of the poor is less pure than that in the Italian Foundling Hospitals, it is well known that the crowding together of a number of individuals in one building is, notwithstanding the greatest attention to cleanliness and ventilation, unfavourable to health. In Dublin the disease has generally been attended with diarrhœa, which appears to be contrary to the author's experience, and trismus nascentium has often supervened during its course. The author's views of its pathology may find support in the resemblance of the disease to the phlegmasia dolens of women, which, although now generally regarded as a form of phlebitis, was until within the last twenty years looked on as an affection of the lymphatic system. In Dublin the treatment by mercurial inunction and baths has been tried in the combination of infantile erysipelas with induration of the areolar tissue, but did not prove more successful than that which included the use of quina with

vapour baths, and attention to the state of the bowels. Good descriptions of the induration of the areolar tissue are to be found in De Salle's translation of Underwood's Treatise, with notes by Jadelot, and in Rochoux's article on the subject in the Dictionnaire de Médecine.—Ed.]

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*Cure of Two Cases of Induration of the Areolar Tissue in New-born Infants (Scleroma), by the Use of Warm Fomentations with Decoction of Cinchona Bark, and of Frictions with Camphorated Ointment.* By M. Clertan, of Dijon.

On the 14th of December, 1842, I attended Madame Dechaux, who was then delivered, at the full term, of a well-formed but apparently delicate female infant. On the third day the nurse called my attention to the child, in consequence of its having lost its appetite for food, while its respiration was attended with constant moaning, and a portion of the body had assumed a deep red colour. There had not been any vomiting, but the motions were a little serous, intermixed with deep green; the face presented spots of reddish-yellow, the eyelids were swollen, the features cold, and the pulse and the action of the heart obscure and unaccelerated. On the infant being stripped, I found the posterior part of the trunk and the lower extremities of a deep red hue, and sufficiently hard to resist the pressure of the finger. The induration extended upwards as far as the lower angles of the scapulæ; the fore-arms were swollen and of a pale red colour. All the parts affected with this dense œdema were increased in volume. I immediately had the child kept moderately warm, while a decoction of cinchona bark was being prepared. As soon as this was ready, I caused the entire surface of the body to be fomented for five or six minutes with the warm decoction, after which I had it rubbed for half that time with camphorated ointment. At the close of these operations the little patient was wrapped in a thick, fine blanket and placed in bed, after having taken the breast better than she had done before the friction. On the fourth day the tissues had become universally supple, the natural colour had re-appeared, and the normal functions were completely re-established; the fomentations and frictions had been repeated three or four times a day.

Six months ago I was sent for to see a male child, which had been born at the termination of the seventh month. During twelve days which had intervened since birth, its weakness had been increasing, its voice had become inaudible, its skin was growing cold. In spite of all the measures employed, its death was hourly expected. Having it stripped, in order to use frictions, and to expose it to the rays of a July sun, I found the lower extremities, the pelvis, and the left fore-arm, affected with œdematous induration. The pallor of the face was extreme. I had the entire body washed without delay in warm decoction of cinchona bark, and subsequently rubbed

with the camphorated ointment. On the third day the induration had wholly disappeared.

I should observe, that this child was seized on the fifth day from the disappearance of the scleroma with epistaxis, which returned three times a day during the three following days. It appeared to be on the point of dying, when compresses of sedative water, placed around the neck, suspended the hemorrhage, each attack of which, although consisting of but a few drops, was rendered dangerous by its persistence. Under the influence of this remedy the little patient recovered, and is now in the enjoyment of perfect health.—*Journal des Connaissances Médicales Pratiques et de Pharmacologie*, Novembre, 1852, p. 91.

[The foregoing notice of the successful treatment of scleroma in two cases, by M. Clertan, forms an interesting addition to Signor Pastorella's account of the disease.—Ed.]

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*Observations on Spasm of the Glottis.* By Dr. Lederer, Assistant Physician to the Imperial and Royal Clinique for Diseases of Children, at Vienna.

Dr. Lederer states, that were we to attempt a division of spasm of the glottis, as it here presented itself to his observation, he might perhaps distinguish two varieties, although it must be acknowledged that these merge insensibly into one another, bearing somewhat the mutual relation of clonic and tonic spasm. While in the former and slighter kind, the little patients, on awaking, crying, or drinking, make repeated expirations with a plainly audible, sibilant or crowing, obstructed inspiration, and immediately afterwards appear to be again relatively well,—in the latter an asphyxiated condition occurs, with cyanosis, coldness, suspension of the pulse and of the action of the heart, the children remaining comatose after each attack; or this second form often passes even into eclampsia, of which he had lately an opportunity of seeing three cases. A review of the cases of this disease from January, 1850, to the end of June, 1852, from observations made in his Clinique, at which were presented, on an average, 4400 sick children yearly, affords the following result:—Of 96 children affected with spasm of the glottis, 92 had atrophy of the cranium (craniotabes),—some with and some without hypertrophy of the brain—one with acute hydrocephalus, one with chronic œdema of the brain; three had rachitis of the trunk and of the extremities without craniotabes[a]; one had congenital disease of the heart.

Their ages were—at and under a fortnight, two; one month, two; two months, two; three months, two; four months, four; five months, seven; six months, seven; seven months, seven; eight months, ten;

[a] Rachitis, in its several forms, is so frequent an affection at the Children's Hospital at Vienna, that of ten children under two years of age, six are found to labour under it.

nine months, seven; ten months, six; eleven months, five; one year, eleven; thirteen months, two; fourteen months, five; fifteen months, one; sixteen months, two; seventeen months, one; eighteen months, three; twenty months, one; twenty-one months, one; twenty-two months, one; two years, six; three years, one[a].

In the several months there were—in January, ten cases; in February, twenty-six; March, twenty-two; April, thirteen; May, ten; June, four; July, one; August, none; September, one; October, two; November, none; December, seven.

Of the patients, fifty-nine were boys, and thirty-seven girls[a].

It is further worthy of observation, that it was generally on account, not of the thymic asthma alone, that advice was sought, but of other intercurrent affections, a statistical account of which was an evident desideratum; but in attempting this the following difficulty presented itself to the author, viz. that in extreme youth the form of a disease seldom continues long pure; a bronchial or intestinal catarrh, or a secondary affection of the brain, soon setting in; and consequently, in the course of the disease, when the children were generally presented, it was not always possible to distinguish the primary from the secondary affection. But in general they were either diseases of the lungs or encephalon which occurred simultaneously with the spasm.

It appeared to the author remarkable that during the course of the disease the spasm often entirely ceased for one or two days, and even returned after an absence of several weeks. In none of these cases did death ensue from the spasm or during the attack, but mostly either from the intercurrent disease, or from the continued effect on the general system of those causes which originally produced the arrest of osseous development.

The result of the post-mortem examinations of the eight children who died with the spasm in the hospital must rather be considered as giving negative information; for if among these the thymus gland was found in two to be very small; in four of normal size; and in two to be enlarged; and if with these are placed the cases in which considerable hypertrophy of this organ was unaccompanied by any trace of spasm,—the thymus gland will certainly be acquitted of any share in the production of the affection under consideration.

Of equal rarity did the author find, in either the external or internal organs, signs of the scrofulous diathesis, on which the adherents of the thymic origin of the disease laid much more weight than on the rachitic, since this made the foundation of their system; and though he sometimes found the view of the reciprocal exclusion of rachitis and tuberculosis refuted by the autopsies, the cases were not numerous, and neither one nor the other condition was highly developed.

[a] The total number of patients in 1850, in the five months of June, July, August September, and October, bore to that in the remaining seven the proportion of 2300 to 2800; and in 1851 the proportion of 2304 to 2820.

In reference to the bronchial glands, to the swelling or tuberculous infiltration of which a permanent place has been assigned in the causation of the spasm[a], Dr. Lederer observes, that in the autopsies of the cases he has mentioned, these glands were twice found to be small, three times were they swollen, and three times they were of the normal size; and in no case was the swelling so considerable that it could be assumed to be the cause of the spasm.

As to the larynx, trachea, and epiglottis, they were more or less vascular in five cases, in some of which hepatization of the lungs, in others considerable bronchitis, was found; in the other three cases these parts were quite pale and anemic.

Finally, as to hypertrophy of the brain, which has been said to play an important part in producing the disease, he remarks that the weights of the brain were as follow:—In a child of three and a half months, it weighed sixteen and a half ounces; in one of five months, one pound three ounces; in one of seven months, one pound three ounces and a half; in another of the same age, one pound five ounces; and in another, one pound seven ounces and a half; in a child of eleven and a half months, one pound ten ounces and a half; in one of thirteen months, it weighed one pound eleven ounces; and in one of two years, the brain weighed two pounds.

If we now compare the foregoing numbers with the average of the weight of the brain for these ages, statistically established by Professor Ritter V. Mauthner, in his work on Cerebral Diseases, we shall find in one case an excess of six ounces, and in another an excess of three ounces; while in the others the weights do not essentially vary from the average. The following appearances were, on the other hand, constantly found:—The cranium was in all the eight cases of a blueish-red colour, and so full of blood that numerous drops of various sizes could be pressed out with the finger; the membranes of the brain were in a state of extreme venous congestion, especially in the cerebellum; the cerebral substance was highly sanguineous and infiltrated with serum. How much of all this is to be regarded as the cause of the spasm, and how much is to be looked on as its consequence; or how much may be the consequence of the concomitant affections; or how much finally belongs to the spasm, as one of the co-existent diseases,—the author does not investigate.

A short review of the above observations, says Dr. Lederer, shows an excessively great frequency of the occurrence of *craniotabes* in spasm of the glottis, this lesion having been found in ninety-two out of ninety-six cases; secondly, that the age most liable to the spasm is between the eighth month and the end of the first year; thirdly, that the disease occurs in the most striking manner, most frequently in the months of December, January, February, March, April, and May; fourthly, that the majority of the patients are males

[a] [See Dr. Ley's valuable and excellent Treatise on the disease. London: 1836.—Ed.]

(to which latter circumstance but little value is attributed, because boys are in general more liable to illness than girls), and, to draw a conclusion from all that has preceded, it would appear that the most frequent predisposing cause of spasm of the glottis is to be found in the existence of craniotabes. But if the nervous irritation of rachitic children is so striking that even the principal nerves re-act against the slightest pressure, and the smaller often on mere handling manifest the most violent pain, the proximate causes are to be sought in everything which, by impairing the power of life in the vascular and nervous systems, makes the organism of the child still more susceptible; consequently they are to be found in long-standing diseases, in anomalous dentition in the severe weather of winter and spring; and though the disease is not strictly an epidemic or endemic affection, it appears to be closely connected with the circumstances of the seasons and of the weather.

The treatment employed when the spasm required more attention than the complicating disease consisted in the regulation of a suitable regimen, and the employment of oxide of zinc, belladonna, and opium,—of which he always gave the preference to the first, because it can be given in larger doses and for a longer time; while the continued use of opium especially is not advisable in this affection, on account of the hyperemia of the membranes of the brain, even though the author does not *entirely* participate in the exaggerated dread which many physicians have of narcotism in the treatment of children.

Dr. Lederer had recourse to the employment of a local bleeding from the head only where the attacks came on with violence repeatedly in the day, in a child sufficiently strong to bear depletion, or where the attacks passed into eclampsia with well-marked meningeal hyperemia, for in this affection much benefit is not to be expected from a lowering plan of treatment.

He has seen no good result from the inunction of croton oil, or the application of a blister over the larynx (in die Halsgrube); the local use of the oleum hyoscyami sometimes appeared to be advantageous.

It is only in the slighter degree of the spasm that he says he could venture to disregard this symptom, and direct treatment solely to the craniotabes, by adopting the remedies fit for rachitis, viz. phosphate of lime and cod-liver oil. Thus, Dr. Levzinsky, Physician to the Hospital, communicated two cases which occurred in his private practice, in which he saw the slighter form of the spasm removed with the completion of the ossification of the skull, under the use of the phosphate of lime: one was that of a child two years old, with hypertrophy of the brain and well-marked craniotabes; the other was that of a child one year old, with craniotabes, without other complication.

A combination of both classes of remedies, that is, of those required for the spasm with such as are calculated to remove the cranio-

tabes, would certainly be desirable, but this is not easy to adopt in practice, because the former must be given in small doses and act quickly, while the latter require to be exhibited in larger quantity, and produce their effects but slowly.—*Journal für Kinderkrankheiten*, July 1852, p. 1.

[The foregoing observations appear to be written for the purpose of proving the existence of a connexion between spasm of the glottis and what the author terms craniotabes, which he admits to be a variety of rickets. It is quite evident that the disease in Vienna must occur more frequently in rickety than in non-rickety children, because, according to the author's statement, the majority of children that came under his notice were affected with rachitis; but in this country it does not appear to affect the rickety more than others,—on the contrary, some of the most rapidly fatal cases have occurred to the finest and apparently most healthy children.

Although Dr. Lederer's cases prove the disease to be confined to the period of dentition, he does not appear to trace the connexion between it and this process; and this connexion will account for its more frequent occurrence during the winter months, as all diseases of dentition are then aggravated by want of sufficient exercise in the open air. We must say that we are greatly disappointed, both with the account of the disease and of the mode of treatment given by the author. We publish the above abstract of it merely on account of the statistics contained.—Ed.]

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*On Mental Alienation in Childhood.* By Dr. Rösch.

This occurs, according to the author's, and contrary to the general, opinion, with tolerable frequency. The rarest form is that of monomania, because in children the power of thought and contemplation is not as yet fixed and constant; the will is not as yet sufficiently concentrated in one direction to rise above all other governing ideas, and to become permanently settled. Melancholy is less rare; mania (Tobsucht) is still more frequent; next in frequency is dementia (Verrücktheit); lastly, idiocy (Blödsinn) is the most common form. It is remarkable that frequently in complete idiocy, only one or other function of the mind is impaired, while another may be healthy or even acute. In the latter case we may give a more favourable prognosis, as in mania and melancholy, which are often secondary affections, depending on causes operating on the brain.—*Vierteljahrschrift für die Praktische Heilkunde*, 1852. Band 3. Analekten, p. 115.

*An Inquiry into the Action of the Anthelmintics.* By Dr. Küchenmeister, of Zittau.

Dr. Küchenmeister has examined the various vermifuges, by immersing the living intestinal worms of fowls, cats, and dogs, in albumen, at a temperature exceeding 77° Fahr., and adding the anthelmintics in the form of infusion or of powder. In some cases, a mixture of warm milk and water was substituted for the albumen. The experiments were not continued for more than from forty to forty-eight hours, if the worm had not been killed before the expiration of that time. Dr. Küchenmeister made use of electricity as the most delicate re-agent for proving the occurrence of the death of the worms. In the first place, electricity cannot be considered as a vermifuge. The author subjected a female *Heterakis vesicularis*, taken from a partridge that had been killed, to the action of a rotatory apparatus, which was kept up with longer or shorter intervals during an entire day. The animal was not destroyed by the experiment. He next tried the remedies employed for the removal of tæniæ, and first tested kousso in the following manner:—A living *Tænia crassicolis*, procured from a cat, was placed at four o'clock in a mixture of albumen and dolichos pruriens. The worm appeared to be perfectly well in this mixture, and at two o'clock on the following afternoon exhibited the most vigorous movements. The tænia was now transferred to a vessel containing a mixture of infusion of kousso and some of the infused as well as some of the fresh powder with albumen. The temperature of the mixture was 30° R. (99.5° F.) On its introduction, the worm quickly extended itself; after some time it was found to be dead, its colour having changed to a dirty reddish-yellow. Two *Tæniæ serratæ* were placed at about half-past one in the afternoon in a mixture of albumen and kousso; at two o'clock they were dying, and at three completely dead. Two *Tæniæ serratæ* from the same dog were brought in contact with kousso and milk at half-past one in the afternoon, and at two o'clock were dead. Two *Tæniæ serratæ* were placed at half-past one in the afternoon in albumen, mixed with decoction of pomegranate root and with some of the powdered root: they died in three hours. Two others were placed in milk mixed with the decoction only: they died in three and a half hours. A *Tænia crassicolis* was put into a mixture of albumen with ethereal extract of male fern: it died gradually in three hours and three quarters. A number of *Tæniæ cucumerinæ* were placed in a mixture of albumen and oil of turpentine: they were dead in an hour and a quarter.

A number of the same were put into a mixture of albumen and castor oil; they appeared lively at first, but were dead in seven hours. Similar worms were put into a salad, composed of pieces of unwatered herring, boiled potatoes, large pieces of onion and garlic, albumen, vinegar, and a large quantity of oil. They died in eight

hours. Lastly, the author tested the vermifuge powers of the brown oxide of copper: fifteen grains were administered in the course of four days to a strong cat. When the body was opened, the entire intestinal canal was found to be full of fluid, yellow, flaky fæces; the intestine was softened, and denuded of epithelium, especially at the termination of the ileum, where the adjoining Peyer's glands were much swollen, particularly in two situations, one of which was an inch and a half long by one-third of an inch broad; the other was nearly circular, and its diameter one-third of an inch. The cat had been purged. The tæniæ and ascarides it contained were lively. It would hence appear that this substance is both inefficacious as a vermifuge and dangerous to the system. The following table contains the results of the above experiments:—

| | |
|---|---|
| In milk boiled with kousso tæniæ died in half an hour. | |
| In a mixture of oil of turpentine and albumen, in | 1, to 1¼ hour. |
| In decoction of kousso with albumen, . . . | 1½ „ 3 hours. |
| In decoction of pomegranate root with milk, . | 3 „ 3½ „ |
| In decoction of pomegranate root with albumen, | 3 „ |
| In ethereal extract of male fern with albumen, | 3½ „ 4 „ |
| In castor-oil with albumen, . . . . . | 8 „ |
| In salmagundi with garlic and onions, . . . | 8 „ |

Kousso would therefore seem to be the most efficacious remedy against tæniæ. When pomegranate bark and male fern root fail, their failure may be owing to the habit of administering a laxative in from four to six hours after the exhibition of the vermifuge, by which the latter may be carried beyond the worm. With regard to pomegranate root, it must be observed, that in large doses it occasions diarrhœa. The same remark applies to castor-oil. The author also alludes to cold water, strawberries, dolichos pruriens, and filings of tin. When tæniæ are placed in water containing ice, they are instantly benumbed, and if allowed to remain in it, they will always be found at the end of ten hours to be quite dead. Strawberries may be useful as a mild remedy in cases of tapeworm; if large quantities of them be taken on an empty stomach, entire portions of the worm will often be passed. Dolichos pruriens, with which the author tried many experiments, appears to possess no power of destroying worms. The author has also minutely studied the medicines recommended for the removal of round worms. In albumen, these worms behave as the tæniæ; in water, at about 77° F., they live for some days, but swell, stiffen, become longer, thicker, and more sluggish; they lose their power of suction, and their motions become slow and only partial,—they resemble leeches which have gorged themselves. In general, however, the males and young neutrals resist the effects of water longer than the mature, impregnated, egg-bearing females, which become quite rigid and inflexible, and swell considerably.

Milk and whey affect the worms like water. The following are the medicines, the effects of which were tested:

1. Camphor. An ascaris lived from eighteen to twenty hours in albumen into which some camphor had been introduced. 2. A mixture of oil of turpentine and albumen killed some ascarides which were placed in it in from two and a half to six hours. 3. Ascarides lived forty hours in albumen and wormseed, whether the latter was employed in the form of powder or infusion. 4. Some ascarides were placed in albumen mixed with santonine; they did not die in it, nor did they die in a watery infusion of santonine. When santonine was dissolved in oil, especially in castor-oil, and mixed with albumen and ascarides, the latter died in ten minutes. An injection of santonine and castor-oil was thrown up the rectum of a cat, and produced numerous motions containing dead worms; and on killing the cat, the entire of the lower portion of the intestinal canal was ascertained to be free from worms, while four were found near the stomach quite rigid and extended, and retaining but little life. A *Tænia crassicolis*, however, was found in the intestines, and appeared to be quite uninjured and very lively. 5. A mixture of albumen and aniseed, with a strong infusion of the latter, killed the worms in about twenty-four hours. 6. Parsley, mixed with albumen, killed ascarides very slowly. 7. Flour of mustard and albumen destroyed them in about four hours. 8. In rue the worms lived upwards of twenty-four hours. 9. The same was the case with millefoil. In contact with tansy, valerian, and camomile, great numbers of them lived for twenty-four hours. With onions and garlic they perished in from ten to fifteen hours. A decoction of cloves, with or without albumen, killed them in twelve hours. In an infusion of ginger, with or without albumen, they lived about twenty-four hours. Petroleum, mixed with albumen, killed them in less than six hours, as did also oil of cajeput and albumen.

A series of vermifuges, taken from the class of balsamics, was tried in like manner, namely, assafœtida, ammoniacum, balsam of Peru, extract of juniper, and Venice turpentine. In all these the worms lived more than twenty-four hours. Of the class of empyreumatics (brenzlichen stoffe), the following were tried:—Oleum chaberti [a mixture of four parts of oil of turpentine, and one of the animal oil of Dippel], oil of amber, castor-oil, tar water, creasote, wood-vinegar, and wood-soot. In these, for the most part, the worms lived from twenty-four to forty-eight hours; except the wood-vinegar, in which they lived rather more than twelve; and creasote, in which they died within two hours. Of bitters, the author tried aloes, gamboge, ox-gall, wormwood, myrrh, gentian, quassia, hops, bitter orange, and acorus calamus; in all these the ascarides lived from twenty-four to forty hours. Of astringents, pure tannic acid, pomegranate root, kousso, extract of walnuts, cinchona bark and quina, elm bark, willow bark, the flowers and stalks of meadow sweet, oak bark, dragon's blood, catechu, and kino. In these the

worms died in from twenty-four to thirty hours, with but two exceptions, namely, tincture of galls and pomegranate root, both of which killed them in the space of eleven hours. Of saline preparations, sulphate of soda, chloride of sodium, and the roe of the herring, were tried. In the first the worms died in from fifteen to eighteen hours; in the second, in from two to six; and in the roe of the herring, in four hours. The following metallic poisons were experimented on:—Arsenic, calomel, corrosive sublimate, and the salts of tin, of lead, and of copper. Corrosive sublimate alone destroyed the worms in so short a time as two hours; all the other metallic salts required a much longer period. From these experiments it would appear that santonine, mixed with oil, is the most powerful vermifuge, then chloride of sodium, the roe of the herring, garlic, onions, &c. The author advises that santonine should be given as a vermifuge; mixed with oil, in the proportion of from two to five grains to an ounce of castor-oil. This solution should be given in the doses of a tea-spoonful until the effect is produced. As auxiliary treatment, chloride of sodium, herring-brine, mustard, onions, and garlic, may be employed.—*Froriep's Tagsberichte über die Fortschritte der Natur- und Heilkunde.* Pharmakologie, Band 1, p. 317.

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*On the Action of the Subnitrate of Bismuth.* By Dr. Filippo Lussanna.

The subnitrate of bismuth, a medicine already well known, has been lately used with new indications and pharmacological applications. Notwithstanding the fear which previously existed of its local caustic action, Monneret has recently recommended it in large doses as a topical [internal] anodyne in various gastro-intestinal affections, gastralgia, diarrhœa, dyspepsia, and cholerine. He, following the fashion of many of his countrymen, ignored almost every general action of this preparation, and declared that its therapeutic efficacy is purely local, and that, far from being irritating, it is absorbent and calming. Monneret has rendered much service to science, by destroying, so far as this remedy is concerned, the Orfilian scarecrows which still not a little impede the rational interpretation of pharmacological facts. But, at the same time, I do not believe that all his deductions are correct and true, when he entirely denies the general effects of this metal. Following his directions, I have administered the subnitrate of bismuth in the large doses given by him. The patients so treated were affected with tubercular diarrhœa, diarrhœa the consequence of chronic enteritis, gastralgia of long standing, and mesenteric disease. From the study of the effects of this remedy, I have been able to deduce the following inferences:—

1. It is true that it does not give rise to intestinal irritation.
2. I have not seen it arrest tubercular or mesenteric diarrhœa.
3. The fæces always acquired a blackish-yellow colour, owing to the unassimilated portions of the medicine being converted into sul-

phuret of bismuth by contact with the sulphuretted hydrogen of the fæcal masses.

4. The excrement, although still presenting the characters of diarrhœa, were always rendered less liquid in consequence of admixture with the powder.

5. The subnitrate of bismuth is in part assimilable, and some portion of the large quantity swallowed is really dissolved and absorbed. This takes place with many other medicines, of which only a portion can be dissolved and absorbed, while the remainder passes unacted on (when the remedy has been given in large doses), through the intestine. Such is the case with calomel, iron, and kermes, among metallic preparations.

6. The assimilation of the subnitrate of bismuth is due to the acid action of the fluids of the stomach, which render it soluble. Any portion that reaches the intestine, whether undissolved or dissolved, cannot be digested and absorbed, because the alkaline chlorides of the intestinal tube have no solvent effect upon it, and precipitate it if dissolved. In this second point of view, Monneret would be quite right in denying the effects of this salt on the economy in general, and in denying its absorption. The subnitrate of bismuth is soluble in acidulous matters, and, consequently, can be digested in the stomach. Thus we can understand how Trousseau and Pidoux, who also were ignorant of the general action of the salt, should, notwithstanding, caution us against administering it when gastric affections are attended with eructations,—in which, say they, "the medicine almost always fails;" since, by rendering it more soluble and assimilable, the presence of acid develops its dynamic action.

7. The non-appearance of the subnitrate of bismuth in the urine does not exclude the possibility of its having been introduced into the circulation. In fact, the subnitrate, having entered the current of blood, is, by the action of the alkaline chlorides of the serum, restored to the state of an insoluble subsalt, and thus becomes incapable of passing off by the uriniferous emunctory.

8. The effects of bismuth thus introduced into the economy are colliquative and scorbutic. The patient acquires a leaden aspect; the eyes become sunken, and present a livid subpalpebral circle; the breath is rendered offensive; the gums swell, grow livid, and discharge a sanious blood; hemorrhage is easily excited, and sometimes profuse passive hemorrhages arise. I had once under my care a case of a dangerous and repeated epistaxis produced by it in mesenteric tuberculosis. Sometimes blood is seen in the expectoration; finally, the alvine dejections are occasionally melenic. Everything announces a solvent action on the globulin, similar to that produced, according to the experiments of Dumas, by the chlorides of potassium, sodium, and ammonium, which dissolve blood corpuscles. It might be classed among Miahle's fluidifying agents.

9. Therefore, when we wish to prevent the absorption, or the

true medical action of the subnitrate of bismuth, to localize its action, and produce none but its mechanical absorbent effects, the rational mode will be to precede or accompany its administration by the exhibition of an antacid, as, for example, calcined magnesia, so as to neutralize and fix the solvent acid gastric fluids. And this, of course, will also be the *chemical* antidote of the preparations of bismuth, with the view of preventing their assimilation, while the preparations of iron and stimulants will be useful in counteracting their general or dynamic effects of producing scurvy,—fluidifying and dissolving the hematin.—*Gazzetta Medica Italiana Federativa Toscana*, 1852, p. 44.

[These observations of Dr. Lussanna, as to the effects of a medicine respecting the action of which much diversity of opinion exists, are, we think, highly important. By some physicians the subnitrate of bismuth is regarded as a remedy of very great power in chronic diseases of the stomach, even when given in comparatively small doses; while others consider it merely as an incumbrance to the Materia Medica, believing that it produces no effect on the animal economy unless it be administered in large doses, and then that its action is irritant and poisonous. M. Monneret, whose experiments are referred to by the author, gave from two to six drachms of it daily, without the production of any ill effects; in the diseases in which he employed it he always commenced its administration in such doses that two drachms were taken in the course of the day, and the quantity was rapidly augmented until six or eight drachms constituted the daily dose[a].—Ed.]

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*Case of Extra-Uterine Fœtation occurring in a Hernial Sac.* By Dr. Skirvan.

An otherwise healthy woman, aged 38, had from childhood an imperfectly developed inguinal hernia of the left side. She had been delivered eight times without the occurrence of anything abnormal, except that on one occasion she had given birth to twins; however, in consequence of her labours being difficult, the hernia had gradually increased until it attained to half the size of a child's head. The patient suffered no other inconvenience from it than that occasioned by its bulk, and the hernia was easily reduced during her confinement to bed. In October, 1850, she experienced, while in the act of stooping, the sensation of a round body falling suddenly into the hernial sac; from that time the hernia steadily increased in volume, and the tumour became the seat of pains similar to those caused by a burn, which were relieved by cold applications. Two months later the patient perceived slight movements in the tumour, and Dr. Skirvan then saw her for the first time; he diagnosed an extra-

[a] Neligan's Medicines, their Uses and Mode of Administration. Third Edition. p. 433.

uterine pregnancy, but deferred operating. On the 24th of April pains set in; they extended from the sacrum to the hernia, and rapidly increased both in frequency and intensity. The patient having been put under the influence of ether, an incision five inches long was made in the fundus of the tumour, which now reached to the knee; the placenta was then observed covered with a sero-fibrous envelope three lines in thickness, the structure of which roughly resembled that of the uterus. The child was extracted living, with the membranes, but died in an hour after the operation. The wound soon closed, and the patient recovered completely; the hernia, however, continued as large as it had been before its occupation by the fœtus.—*Wiener Zeitschrift. Nouvelle Encyclographie des Sciences Médicales*, October, 1852, p. 261.

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*Special Pharmacopœia for Diseases of the Skin.* By Alphée Cazenave, M. D., Physician to the Hôpital St. Louis, Paris.

(*Continued from* Vol. XIV., p. 505.)

Burdock is said to possess considerable efficacy in the treatment of scabies, favus, herpetic ulcers, &c. It has been recommended in syphilis as a diuretic and as a substitute for sarsaparilla, and is now also prescribed as a depurative in chronic affections of the skin. *Ptisan of Burdock.*—Sliced burdock, one ounce; boiling water, thirty-two ounces; infuse for three hours; strain, decant, and add syrup of capillaire, one ounce. The decoction is sometimes useful as a soothing lotion in pruritus.

Barium.—The preparations of baryta, recommended in a great number of diseases, have been employed in the treatment of syphilis and of certain chronic cutaneous affections, especially when connected with a lymphatic temperament, or a scrofulous complaint, as certain eczemas and inveterate chronic impetigos, but chiefly in some forms of lupus.

The chloride of barium, first recommended by Crawford, is chiefly used. It is a very energetic poison, and is difficult to manage as a medicine. The eighth of a grain is given dissolved in some mucilaginous fluid; the dose has been gradually increased to two or three grains daily. *Barytic Water.*—This has been employed mixed with olive oil, as a topical application in chronic cutaneous diseases in the impetiginous forms, in chronic eczemas of the legs, and to unhealthy-looking excoriations. *Chloride of Barium* (Professor Lauth's mixture).—Chloride of barium, three and a half grains; water, three ounces; Whyt's stomachic tincture[a], one ounce; for an adult. The quantity of chloride in the foregoing should be, for a child of six years, one grain eight-tenths; for one of four, one grain two-tenths; and for one of two years, six-tenths of a grain. A table-spoonful of

[[a] Yellow bark, three ounces; gentian root, outer rind of orange, of each, one ounce; digested for six days in a pint and a half of rectified spirit, diluted with half a pint of cinnamon water.—Ed.]

the mixture to be given some hours after breakfast. *Pills.*—Take of chloride of barium, nine and a quarter grains; dissolve in half a drachm of distilled water; add, of powdered gentian, two drachms; powdered gum Arabic, half a drachm; and simple syrup, a sufficient quantity; make into ninety-six pills (Foy): Uses, the same as of the preceding preparation. The chloride of barium is generally combined with ferruginous preparations, and especially with hydrochlorate of iron; Hufeland in particular has extolled the efficacy of this combination. *Solution of Chloride of Barium and Hydrochlorate of Iron.*—Take of hydrochlorate of iron and chloride of barium, of each, half a drachm; distilled water, ten drachms; dissolve. Dose: from twenty to sixty drops. *Use*, the same as of the preceding.

BALMS.—*Baume Chiron ou de Lausanne.*—Take of olive oil, ten ounces; Venice turpentine, two ounces; yellow wax, one ounce; alkanet root, half an ounce; boil together, strain and add of balsam of Peru, two and a half drachms; camphor, nine and a quarter grains; stir constantly until cold. Employed to promote the cicatrization of chapped nipples and broken chilblains. *Balm for Chilblains.*—Take of rectified spirit of turpentine, one drachm; sulphuric acid, fifteen grains; olive oil, two and a half drachms: mix. To be rubbed night and morning on unbroken chilblains. *Goulard's Balm* (Oil of Saturn).—Take of essential oil of turpentine, any quantity; heat it *secundum artem*; decant, &c. Used for dressing phagedenic ulcers, ecthyma, some chronic eczemas, and rupia. *Plenck's Mercurial Balm.*—Take of mercury, one ounce; Venice turpentine, half an ounce; lard, three ounces; calomel, seventeen grains and three quarters; elemi ointment, three ounces: mix. Used for dressing venereal ulcers.